AMIGA WORLD

November 1988
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Publication

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Contest Results—p. 76

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Professional Draw

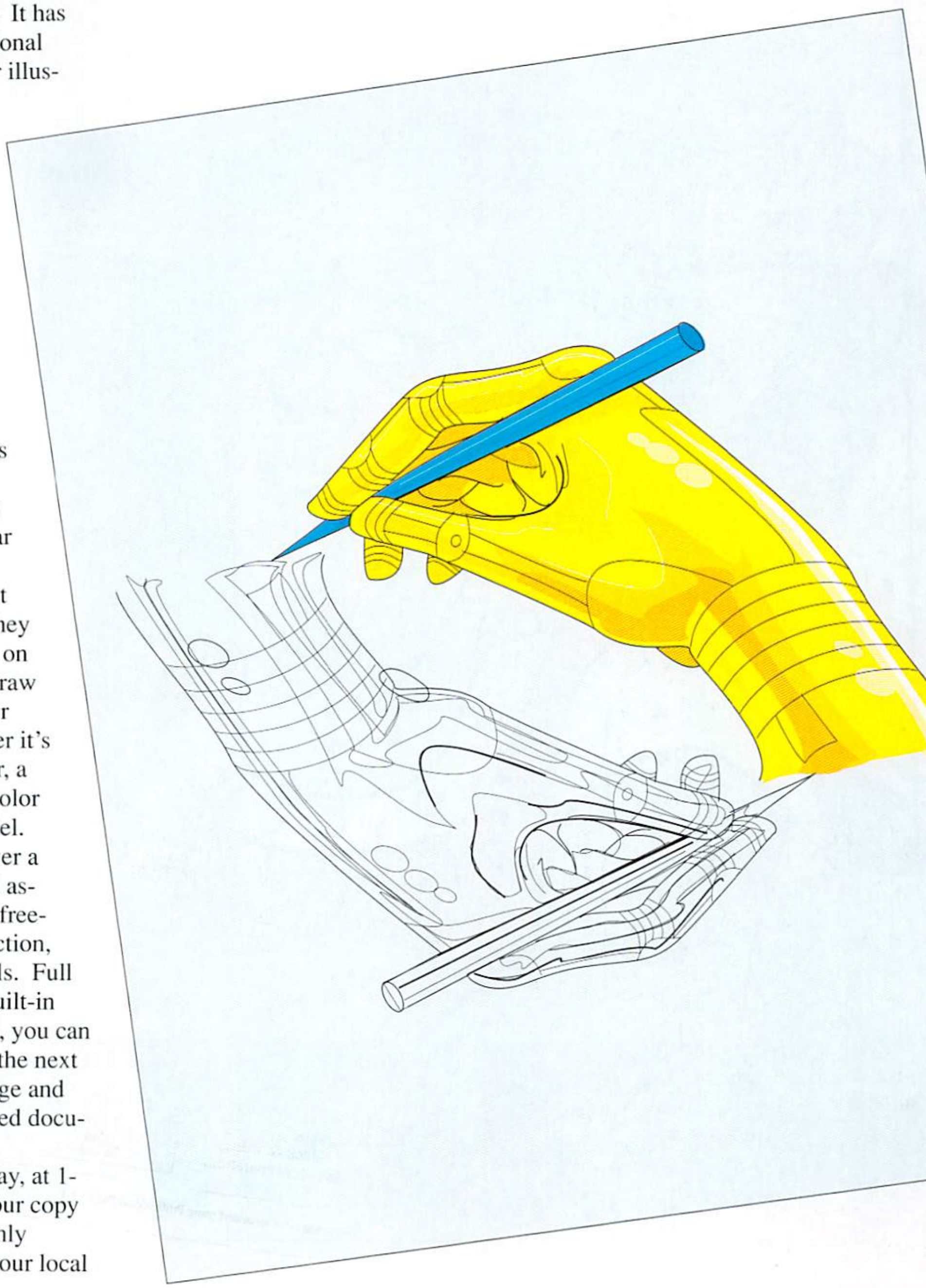
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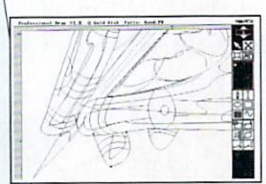
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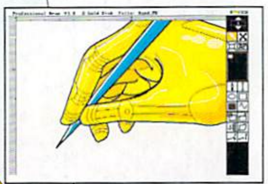
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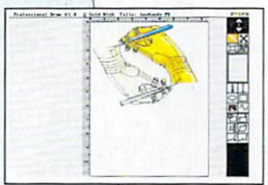




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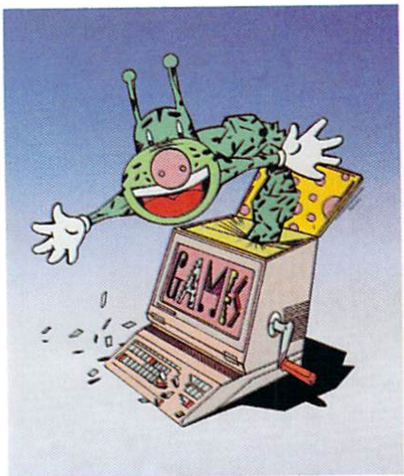
To order see page 37

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VOLUME 4, NUMBER 11 NOVEMBER 1988

CONTENTS



No 20 Deadly Databases or 60 Similar C Sorts this issue! It's fun and games this month as everyone connected with AmigaWorld *got together to compile the Top 40 All-Time Favorite Amiga Games. So let down your hair and have some fun!*

FEATURES

ARTICLES

COLUMNS

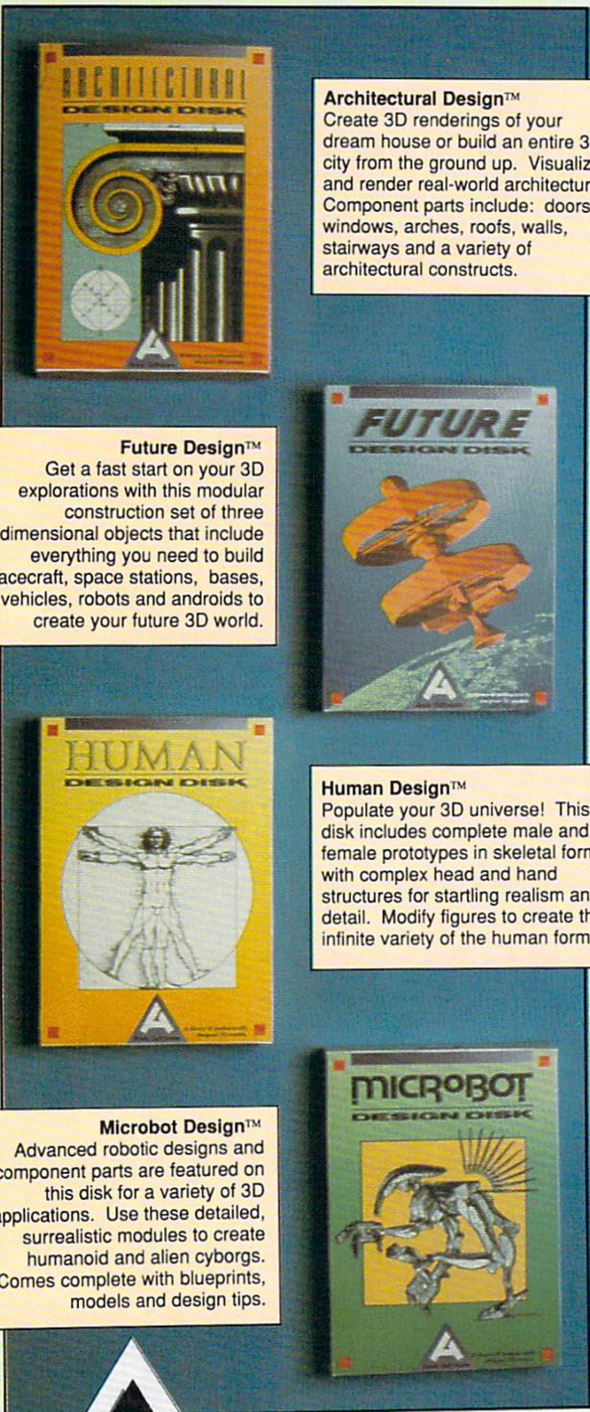
DEPARTMENTS

TREASURE HUNT RESULTS
The contest results are in! The name of the lucky winner and the answers to all the clues in ***AmigaWorld*'s Summer '88 Treasure Hunt** are waiting on **page 76.**

COVER ILLUSTRATION BY ISTVAN BANYAI

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ZEITGEIST

Fun and games.

FROM THE HIGHWAY, you spot our building, a new modern-looking affair attached to an old motel. You pull into the nice paved parking lot and notice spaces reserved for visitors and everything. You go through the main entrance into a little waiting area where two receptionists greet you courteously and professionally. There is wall-to-wall carpeting, pictures on the walls, and it looks very clean. Upstairs and through a few doors you come upon the offices of *RUN* and *AmigaWorld* magazines. Lots of cubicles filled with office furniture and serious, hardworking employees.

First, you pass through the art/design department. These people are a little on the strange side. (Being artists they are supposed to be a little strange. I think that it must be a requirement. Or perhaps they took courses at school. . .if they went to school.) Next, you walk past the glass-walled offices of the ad sales team. They are usually talking on the phone, taking notes, straightening their ties, or reading the sports section of *The Boston Globe*. The ad sales people all dress in suits and ties, just in case a potential advertiser walks into the office unannounced some day looking to buy ad space from someone in a turquoise tie. Across from them is a bank of ad coordinators (the poor people responsible for turning the ad sales people's phone conversations into contracts and orders and eventually advertisements in the magazine). They are all neat and clean and working hard, shuffling papers, getting things signed, talking on the phone too.

Then you pass the publisher's office. It is the largest office on the floor and is almost always filled with people attending some meeting. His secretaries and assistants bustle about constantly. Next is our marketing department, the people who figure out what trade shows we should go to, what surveys to take and that sort of thing. Beyond marketing you begin to close in on the editorial department. As you get closer, you will notice the piles of boxes in the hallways, the strange clippings, musings, posters, and Fish Head antennae stuck to the walls, the offices piled high with papers, boxes, toys, baseball caps, sunglasses, swords, software, hardware, books, and other paraphernalia. As you get closer and closer, you begin to hear the "PING-PING!", "ZZZZAPP!", "PPCHOING!", and "BLAMMM!" of laser cannons firing, tires screeching, bombs and missiles exploding, and baseball bats cracking.

For the most part people are very professional around here. Meetings are held, strategy is planned, budgets are put together, correspondence is mailed. And then there is editorial.

We actually do quite a bit of work in the editorial department. Articles come in, they are tech checked, edited, typeset, sent to paste up, checked and re-checked, and finally sent to the printer. We come up with ideas for articles, illustrations, covers, titles, topics, and everything in the magazine that isn't an ad. We go to dozens of trade shows each year. We wade through piles of mail. We answer hundreds of phone calls. And we look at hundreds of products.

When a new game comes into the office, it gets played. Whoever sees it first when the mail comes in gloms onto it, boots it up, and a crowd begins to gather. After ten or twenty minutes (if we can't figure out how to get past level one), we read the instructions.

We each have our favorite categories of games. Bob likes arcade, war, strategy and sports games. Linda likes sports and some arcade games (if they aren't too tough). Shawn likes sports and solitaire games (but he is a big Nietzsche fan, too). Barbara likes kids' games because they confuse and amuse her. Lou likes text adventures, arcade, role-playing, and just about anything you can put into an Amiga. Dan likes games that involve gambling with real money, like horse racing and poker, so he ends up watching or working most of the time. I like strategy, war, role-playing and arcade games because I'm so good at them and can beat anyone on the staff (you don't suppose they let me win because I'm the boss do you?. . . Naaaa).

When we started to put together this issue with our feature on games, we wondered about the amount of time it was going to take. After all, there are hundreds of games for the Amiga. How were we going to assign that many reviews? How long was it going to take? How many reviewers would we have to commission?

We made a list of all the games, and before we started assigning any of them to freelance reviewers, we each checked off the games that we had played enough to write about. When we finished, it turned out that there were only three or four games that no one in the office had played. Over 300 games, and we had played just about all of them.

"Do you guys ever do any work around here?" many of our associates ask.

I have only one answer for that kind of question.

"Don't bother me now. Can't you see that I'm on level 27 with only two lives left?"

Guy Wright



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REPARTEE

Comments, complaints, and concerns

from AmigaWorld *readers.*

MORE HAPPY HUNTERS

REGARDING ADAM Kortepeter's letter about *AmigaWorld*'s Summer '88 Treasure Hunt ["Brain Drain in U.S.," Repartee, Sept. '88, p. 8], we would like to thank Adam for referring to us as geniuses. We found the Treasure Hunt to be challenging without being impossible. While some research at the local library was necessary, we also answered many of the clues through our general knowledge or intuition. We all agree that the Treasure Hunt would have been much less fun if it had been easier.

If Adam does get his three-month job to buy a fully-decked Amiga and come to Hawaii, he can visit us here where one of us will be enjoying our free Amiga. He can also rent a Ferrari that looks just like Magnum's for a lot less than the cost of a new one.

Douglas Griswold
David R. Gsoell
William Haden
Daniel Mather
Robert Strand
Aiea, HI

SOLVING THE TREASURE Hunt gave me and my family many hours of enjoyment. The more vague the clues were, the more we were up to the challenge. Some of the clues were not too difficult. We actually knew some of the answers from our travels. Then there were those clues that sent my wife to the library for two or three hours at a time, and the long evenings (sometimes as late as 3 a.m.) discussing possible answers, and the long-distance phone calls to weird places to gather more information.

We cannot describe the feeling we had when we dialed the number for the final clue and heard the voice on the other end. Wow! Our answers were correct!

We have never won any major contest in our lives and probably won't win this one either, but that isn't so important to us, because of the terrific feeling we have from knowing we solved a pretty difficult puzzle.

Bravo to whoever concocted this Treasure Hunt! You guys know how to do it up right.

Don & Judy Wendt
Elgin, IL

IF THE TREASURE Hunt turns out to have been an idle pastime, it will still have been enjoyable. Anything that combines remembering guys like Bill Terry with maps can't be all bad. And if a few more copies of *AmigaWorld* are sold because of it, remind Mr. Kortepeter that those people would have just spent the money on liquor and cigarettes anyway.

Walter A. Miles, Jr.
Chevy Chase, MD

CUT AND SPLICE

WHEN I OPENED the keyboard/mouse box of my Amiga 2000, I was disgusted to find that the connector ends of the keyboard and mouse cables had been *cut* and *spliced!* Granted, a very nice job of heat shrinking, but hardly characteristic of a computer that lists for over $1900. The dealer explained that all new A2000s were being shipped with the connectors spliced, and suggested I contact Commodore. The Commodore rep knew nothing of the situation and sent me off to contact a service center. Again, no help.

How can the Amiga be taken seriously in the business world when Commodore practices poor quality control? Any business user (such as myself) would find the butchered mouse/keyboard connectors unacceptable for a machine of this price and power.

Richard Davis
Pismo Beach, CA

MORE GAMES

I AM 40 years old, but I really like games, as do my family and friends. In the July '88 issue of *AmigaWorld*, only one game was reviewed, and then only one in August. Why? Do you want to stay away from games, so as not to give the Amiga a "bad image"?

Don't games represent at least 20 to 30 percent of software sold? If so, shouldn't at least 20 percent of your coverage be on entertainment? I propose a new department: entertainment.

George M. Knochel
Lakewood, CO

We like games, too, as you can see from this month's feature on the best Amiga games. Also, we will be doing a games column, tentatively scheduled to start in the February '89 issue. It won't be 20 percent of our coverage, but at least we'll be covering games on a regular basis.
—Editors

ERRATUM

REGARDING THE REVIEW of Quarterback from Central Coast Software [August '88, p. 72], Quarterback will run under Workbench 1.3 and the Fast File System; no upgrade is necessary for compatibility with Workbench 1.3.

Send your letters to: Repartee, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. Letters may be edited for space and clarity. ■

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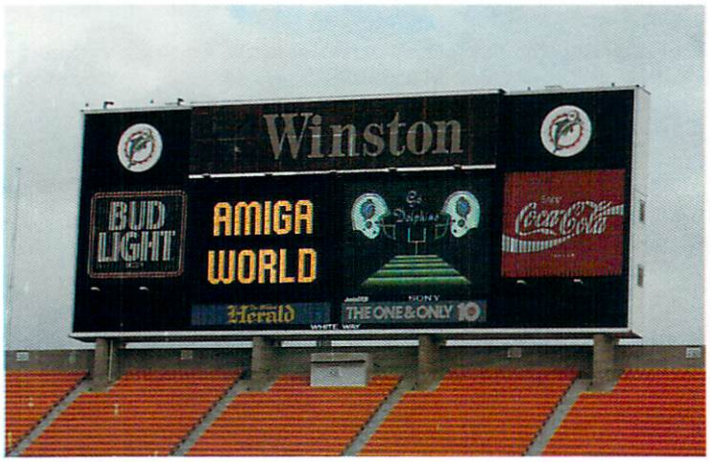
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Circle 174 on Reader Service card.

NOTEPAD

Compiled by Linda Barrett

Move Over, Fridge!



The Amiga tackles jumbo graphics.

THE CHICAGO BEARS' William Perry may be the biggest appliance *on* the field, but off the field—just above the seats at Miami's Joe Robbie Stadium—the Sony Jumbotron that displays the graphics on the Dolphins' super hi-tech scoreboard is clearly the biggest bruiser in the NFL. If you've ever taken a close look at Jumbo's pixelated pyrotechnics, they may look strangely familiar. After all, they were created on an Amiga.

Joel Tessler of North Miami Beach is a video professional who spends his autumn Sundays controlling graphics displays at Joe Robbie Stadium. Using the Amiga, he creates both still pictures and animated sequences and displays them on the Jumbotron. The dazzling color scoreboard is nothing more than a giant RGB monitor.

Tessler has an Amiga 500, 1000, and 2000, and all three get playing time for the Dolphins. In their second year on the big board, the Amigas are backed by Live! (A-Squared), Invision (Elan Design), and Forms In Flight II (Micro Magic). Says Tessler: "The Amiga is perfect for this type of work. Besides making it easy to create great graphics and animations, the Amiga is also easy to interface to the Jumbotron."

Although Tessler will use the Amiga for all eight Dolphins' home games this year, he promises to save something special for Super Bowl XXIII, which will be held on January 22, 1989, at Joe Robbie Stadium. "I figure that with a worldwide audience in the hundreds of millions, I've got to produce something spectacular," says Tessler, "and, of course, I'll produce it on the Amiga. It's a big machine with a big heart."

Whether you are an Amiga fan, a football fan, or both, don't miss this year's Super Bowl. If the game gets boring, you can always watch the scoreboard.

—RR

Three-dimensional Show

THE HIGH-END USERS at the Association of Computing Machinery's summer SIGGRAPH (Special Interest Group Graphics) show were looking for alternatives to capital-intensive systems cast in silicon. The flexible, multitasking Amiga was in the right place at the right time.

The Commodore exhibit was packed tightly. Ameristar showed its **Internet** system using an A-500 as a platform for a full-featured network system running UNIX. To interface your machine with the high-end workstations, GFX MEM offered an Amiga version of the **X-Windows** protocol. ADCA exhibited a new generation of **medical diagnostic tools** using an Amiga and Live! (A-Squared) for infrared scanning and thermographics. Impulse demonstrated the **VD1** buffer and frame-capture device and a new version of **Turbo Silver**, a ray-tracing program. Mimetics' **24-bit frame buffer** displayed clean, broadcast-quality images. Microillusions showed the full line of **Photon Video** products.

3-D was a watch-word. Byte by Byte showed its professional version of **Sculpt 3-D** and a prerelease of **Sculpt-Animate 4-D**. Not for the faint of heart or pocketbook, Octree's script-based 3-D modeling system, **Caligary 3-D**, has one of the easiest object-design modules, but requires a single-frame controller and VCR to render an animation. The software itself costs $2000. Requiring only a megabyte of

RAM, **Forms In Flight II** (Micro Magic) offers Phong shading and animation without scripting.

You may have to wait to see the **Video Toaster**'s flips, tumbles, zooms, and other special effects; NewTek is delaying the board's release until the cost of RAM drops, between October and December.

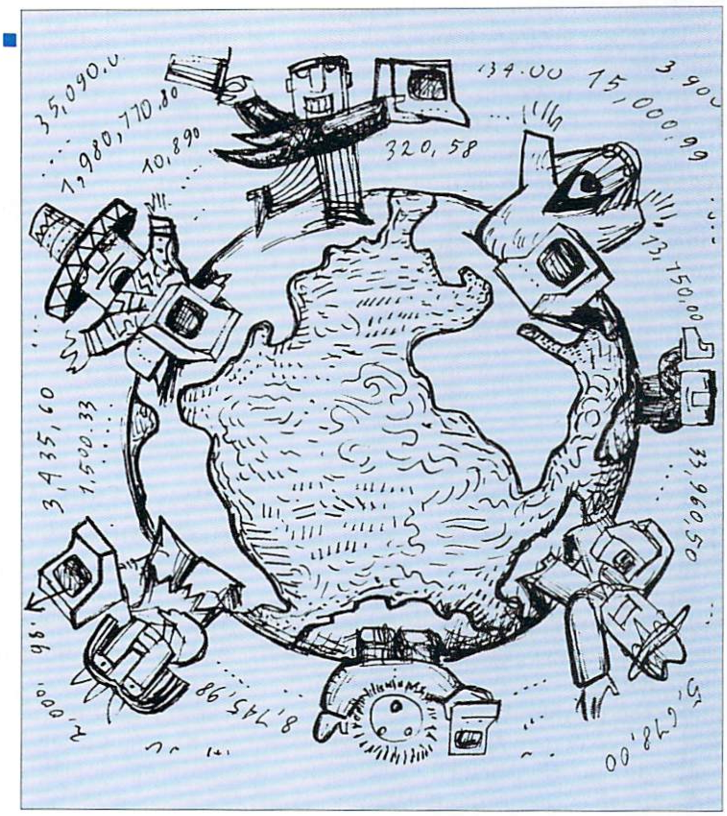
Once you create your graphics, you could follow up on several tips offered at the show to dub them to videotape. RGB Video Creations interfaced VCRs and Amigas with the **Amiga Link Editor**, creating a video-editing system. Gossett Graphics offers the **Gossett Rendering Service** and a **SMPTE LOCK**, which lets you control MIDI and video sequencing for full multimedia production.

For a more exotic media, Winner's Circle Productions connected a Panasonic OMDR (Optical Memory Disk Recorder) to an A2000 and recorded still-frame images to laser disk at 30 frames per second. The company is also developing software for WORM (Write Once Read Memory).

If the warm welcome at SIGGRAPH was an indication, the Amiga is on its way to being accepted as a professional video tool. SIGGRAPH's Film and Video Jury gave the Amiga an endorsement by selecting three videos to air in the show's animation screening room. Winner's Circle Productions, Byte by Byte, and Alan Hastings received the honors for "Time and Time Again," "Desktop 3D," and "Rush Hour," respectively.

—Joel Tessler

Exchange Rates



DOES YOUR BANK account shrink disconcertingly quickly as your computer system slowly expands? At first accounting, compiling an Amiga system here in the U.S. may seem expensive, but a quick shopping trip around the globe will show you how cheap it is.

In Australia, basic machine prices compare favorably, but peripherals will bleed you dry. According to Australian reader Gary Hughes, an Amiga 500 with one megabyte of RAM, a Commodore color monitor, and Textcraft Plus sells for $1399 ($1133 American); an A2000 with three megabytes and a color monitor sells for $2995 ($2426). 20MB hard disks cost between $1000 ($810) and $1699 ($1376). A meg of memory expansion for the A1000 will run you at least $800 ($648), and CSA's 68020/68881 combination for the A1000 is $5000 ($4050).

While visiting Mexico, correspondent Marshal Rosenthal was enchanted by the traveling market, the Mercado Sobre Ruedas, but astounded by the prices next door at SIGMA, the country's only Amiga outlet. An A500 will cost you 7,930,000 pesos ($3447), but the store will throw in an A1084 monitor for an additional 1,987,000 pesos ($864).

The really high-rollers are in Saudi Arabia, Marshal added. Amiga 2000s sell for the equivalent of $15,000. Bring your credit cards.

—LJB

Forecast: 100% Chance of Amiga

FOR THE FIRST time since 1973, New Zealand had a change in its weather. The country's national television network, TVNZ, is now using Amigas to create weather graphics, a dramatic change in its weather broadcasting.

Before acquiring an Amiga 2000 and a PAL version of WeatherConnect Inc.'s weather-graphics software, the Auckland-based TVNZ used an Apple II for graphics. In previous broadcasts, the weather presenters did not even stand in front of a map. With the new system, TVNZ overlays hi-res Amiga graphics on colored maps of New Zealand created on an Ampex still-storage machine.

In addition to a new computer, the Network News hired two new weather presenters, Jim Hickey and Penelope Barr, formerly of the New Zealand soap opera *Gloss*. The entire package debuted successfully on July 25, 1988.

—Beau Janens

HORS D'OEUVRES

Hints, tips, and techniques

from your fellow Amiga users.

BASIC Notes

TO HELP ME learn BASIC, I've been typing programs from books and magazines. From watching how others use various commands, I've been able to learn some programming. Anyway, I sometimes forget where I got a program that I typed in a few weeks or months before. My solution is to always add a REM or PRINT statement that indicates where I got the program. Now I can see at a glance which book or magazine a particular program came from, no matter how long ago it was.

Larry Zuhlsdorf
San Francisco, CA

Crash Reprieve

AMIGAWORLD HAS BEEN publishing C programs for a while, so I suspect that many of you have seen the dreaded "Software Error" requester. It comes up when a programmer goofed somewhere along the line. I have seen my share of them. You may not have noticed, but there are two types. One tells you to finish all disk activity, then click the requester, while the other is the full-blown black-and-red guru. (The first type will give you the guru when you click on it.) If you read the first requester carefully, you will note that it mentions the word "task," as in "this individual task has a problem." So, one day I dared to open a new CLI window while ignoring the requester, and guess what? The new task worked just fine.

There are some things you must know before attempting this. One is that you are probably playing with fire, so back up your programs frequently. Second, in order to do this trick, you must have either another CLI task running, or, do as I do and use the great PD utility PopCLI to start a new task. This is necessary because, while the requester is there, the keyboard is locked up for that task. I have done this up to three or four task crashes before finally rebooting, so I know it works. It might all depend upon the severity of the mess up, so, as I said, be cautious. One more note: The ignored requester will continuously pop up at you—it never gives up.

James Nakakihara
LaPalma, CA

Disk Label Tape

HERE'S HOW I attach the custom disk labels that I create on my Okimate printer. I use toupee tape. That's right. You can find 1″ × 3½″ toupee tape in barber shops and hair-replacement centers. You need two tapes on the back of each label. It is a nice, clean way to attach custom labels to your disks safely and professionally.

Merrill Niner
Westminster, MD

Cheating with Arkanoid

BOOT UP ARKANOID and start a one- or two-player game. When the vaus appears, press the space bar and type:

dsimagic

(no spaces, no carriage returns). Press the space bar again to resume play. A yellow capsule labeled "DS" will appear and fall down the screen. Catch the "DS" capsule. You will notice that you have lost the sound. Press "A" to get the sound back. Now, by pressing the key (or letter) that matches the letter on a capsule, you can make one of those capsules fall. B = break, C = catch, L = laser, P = player, S = slow, and F = final round. The final round is the very last level, where you must destroy DOH, the weird looking character on the cover of the Arkanoid package. "DSIMagic" will last until you reboot.

Sam Hulick
Bloomington, IN

Help for Barbarians

HERE'S A TIP for fans of the game Barbarian. Start the game as usual. Once you can see the barbarian standing in the swamp, type:

04-08-59

(include hyphens, no spaces, no carriage return). The black screen will now turn gray (this tells you that you are invulnerable). After a while, the screen will go back to black, but you are still invulnerable. Hint: Once you get to Necron, here's what you must do. First, you must have a shield! When Necron turns to face you, face him. He will throw a fireball at you. Press the defense button when the fireball hits your shield.

Sam Hulick
Bloomington, IN

Speeding Up Bard's Tale II

THE BARD'S TALE II is a fantastic adventure game, but the frequent disk accesses slow the game down. A representative from Electronic Arts told me that it couldn't be done, but here is how ►



Mindware International 110 Dunlop Street, West, Box 22158 Barrie, Ontario, Canada L4M 5R3

For more information or the dealer nearest you: **1-705-737-5998**

Order line: **1-800-461-5441**

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Circle 236 on Reader Service card.

to use ASDG's FACC II to speed up the game. From the CLI, type:

MAKEDIR BARDSDK:C

Copy a NewCLI from the Workbench disk to BARDSDK:C. Boot the Bard's Tale II, then quit the game. Type:

NewCLI

Place a Workbench disk containing FACC II in drive df1: and type:

```
df1:c/assign c: df1:c
runback df1:FACCII
cd df0:
bard
```

On a three-megabyte Amiga, I have set the FACC II buffer to 4096 with no problems. Happy adventuring!

Stuart Pierce
San Diego, CA

Emulator Speedup

THERE IS A noticeable loss of speed using the 64 Emulator from Readysoft, but if you program in BASIC, there is a way to speed up your programs. As long as they are pure BASIC programs (no machine-language subroutines), just compile them with the BASIC-64 compiler from Abacus Software. Then, when you run them on the Amiga via the 64 Emulator—voila! The programs run as fast, if not faster than the standard version on a C-64.

The combination of the Readysoft Emulator and the Abacus compiler makes for a winning combination. Perhaps Abacus will release their compiler on 3.5-inch disks for Amiga users who dabble in the world of the C-64.

David Bush
Kamloops, BC, Canada

Capone Tip

IF YOU HAVE been wondering where the "special bonus" is in front of the post office, it is the ball at the top of the flag pole. Shoot this and your score will jump. Shoot it again and you will be sent to a screen showing pictures of the programmers. Fire again and you will end up in the bank, and you will be invulnerable. Be careful about hitting the tellers, though, as you will lose points. At the end of that round, you start at the beginning, only now you are in "warp speed."

Mike Krsnak
Sioux Falls, SD

Three Stooges Tip

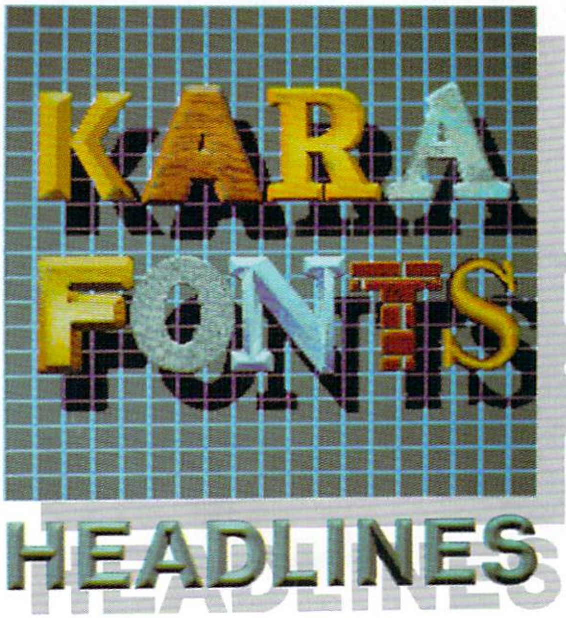
IN THE THREE Stooges game for the Amiga, the best and easiest trick for slowing down the speed of Moe's hand in the slapping game is to try to pull Curly's ear. Once you do that, continuously pull it until your time runs out and you will have slowed it down completely.

Ernie Millan
Downey, CA

If you have an idea you'd like to share with our readers, send it to Hors d'oeuvres, Amiga-World *Editorial, 80 Elm St., Peterborough, NH 03458. If your idea gets published, you'll receive an* AmigaWorld *surprise gift.* ■

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Available now from dealers.
List price, 3-disk set: $79.95

Dealer inquiries welcome

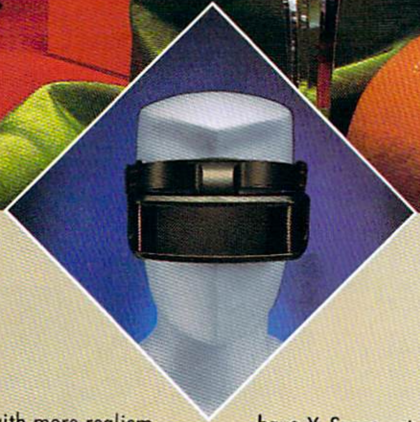
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HAITEX

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DELUXE PRODUCTIONS

Truly deluxe animation.

By Gary Ludwick

DELUXE PRODUCTIONS IS of the same parentage as DeluxeVideo; both are animated-video production tools from Electronic Arts.

Deluxe Productions consists of two art disks, a program disk, and a utilities disk, none of which are copy protected. Working in a high-resolution 672 × 444 overscan format, the program provides easy access to smooth animation and a wide variety of screen effects. It does not, however, offer all of DeluxeVideo's capabilities.

The only graphics input Deluxe Productions offers is a set of high-resolution fonts. To use them, however, you must load them into a paint program and then transfer them back. The program does not include tools for creating images either; all other artwork must be imported. Although the manual says that other IFF paint programs may work with Deluxe Productions, the company recommends and supports only DeluxePaint II (also from Electronic Arts); all references and tutorials are geared toward DeluxePaint II.

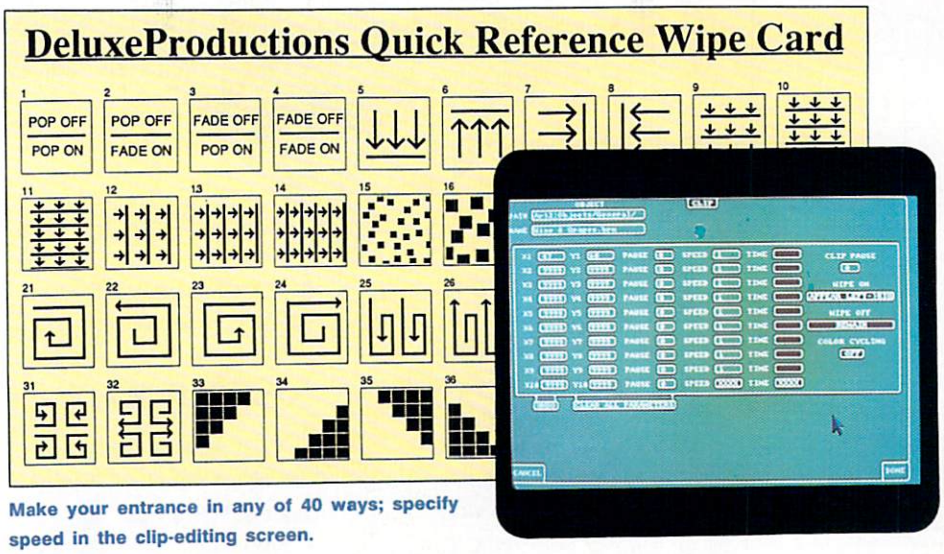
DRESSING IN LAYERS

Deluxe Productions videos contain several layers of elements. Your production can consist of as many as 12 scenes, each of which includes a background picture and up to five clips. A clip accommodates an object and the object path—a set of up to ten points that describe the object's movement.

Deluxe Productions gives you a choice of 40 wipes to control the way images appear and disappear in scenes and clips. While DeluxeVideo employs a graphic time-line interface, Deluxe Productions offers an easier-to-use storyboard approach. The production screen shows 12 boxes, each representing one scene. You specify how the background comes into view simply by indicating a scene number, loading the background picture, and choosing a wipe. Double clicking on the scene board takes you to a screen containing five boxes—one for each clip available. You follow a similar process for each clip, this time specifying two wipes to indicate the manner in which objects emerge and vanish.

Now it is time to plot the object's path. Using the mouse, you move the object across the background, clicking the left button wherever you want the object to stop, pause or change direction. Once you have plotted a course, the program automatically fills in the frames between points to produce seamlessly smooth motion.

In the clip-editing screen you can refine your animation by specifying the speed of animation between any two points, and the lengths of pauses. Based on your specifications, Deluxe Productions will compute and display the total animation time required. The program shows you the screen coordinates of every point and movement, and although you can change these coordinates on the clip screen to modify the animation, it is far easier to return to the plotting screen and redraw your object's path.



Make your entrance in any of 40 ways; specify speed in the clip-editing screen.

SEEING IS BELIEVING

Deluxe Productions offers two methods of playback: VCR (continuous) mode, and Slideshow mode, which lets you step through the clips by clicking the mouse. Slideshow mode is especially useful for synchronizing the production with a live speaker.

You can introduce color cycling in both scenes and clips. The program also enables you to create a color palette to accommodate objects and background pictures from different source palettes, and lets you print production scripts as well as graphic screens. ►


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Deluxe Productions is a large program, and because the sum total loads into RAM, it is best run with 1.5 megabytes of memory (if you have less than that, plan on doing some disk swapping). As large as it is, though, Deluxe Productions is missing a few things. Sound capability is one. Also, while DeluxeVideo lets you create animation within static objects, no such option exists in Deluxe Productions. Copying your masterpiece involves more than just saving it to a formatted disk. Deluxe Productions doesn't automatically save all production elements; instead, it saves only the resulting script and a collection of the disk names, directories, and paths to those elements. Load a production for playback, and the program asks for disks. Although Deluxe Productions supplies a utility for creating copies, the process requires ten steps.

With Deluxe Productions, complicated and sophisticated effects are easy to achieve. Point-and-click animation and infinite control of speed, timing, and position make it a joy to work with. With 40 different wipes available, and with the capacity for moving, copying, and interchanging scenes, altering object paths, and so on, your ability to tweak videos is nearly infinite. You do need DeluxePaint II to get the most out of it, though, and while its animation capabilities are superior to DeluxeVideo's, it's not the tool for you if you want integrated sound.

Deluxe Productions
Electronic Arts
1820 Gateway Drive
San Mateo, CA 94404
415/571-7171
$199
One megabyte required.

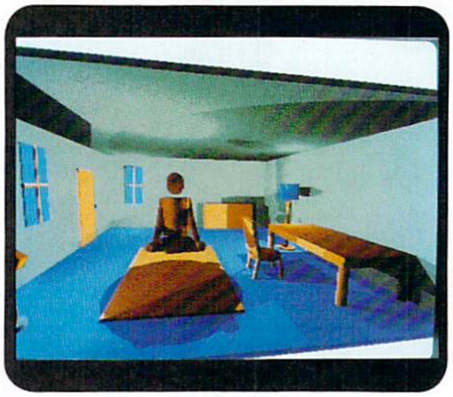
C-LIGHT

Light the stage for easy ray tracing.

By Wayland Strickland

C-LIGHT, A THREE-PART program, enables you to create a cast of objects and place them on a set. The first module is C-Light I, an object-creation workshop. The Video module lets you set up resolution, picture size, and video standards. C-Light II performs the ray tracing, that is, it plots light rays through space as they bounce off your creations. What sets this package apart from its competitors is its all-around simple approach.

C-Light I offers balls (spheres), cans (cylinders), and cubes as building blocks. While this may sound limiting, it is not. You can quickly and easily maniplulate the shapes to produce virtually anything. To create a door, for example, you would stretch a cube into a door-size rectangle, and then flatten it. To make the lock plate, follow the same procedure, but shrink the shape and center it on the left edge of the door. For the stem of the handle, take a cylinder, reduce it in size, and place it on the lock plate. Now compress a sphere and place it over the cylinder to complete the door knob.



You can build anything using three basic shapes!

Raise the Curtain

To select a shape, simply click on its icon at the right of the screen. C-Light I displays your selection in wire-frame mode; you can place it anywhere in the three-dimensional universe with the mouse or by setting coordinates in a pop-up requester. Then you can specify size (in each dimension), color, surface texture (smooth-shaded or mirrored), and angle of rotation (0 to 360 degrees) for each object. Most operations are carried out in real time, although I did experience a lag when using the mouse for complicated maneuvers. If you wish to revise an object you have already generated, you can select and modify (or delete) it in the same manner.

Although you can choose from any of 4096 hues, C-Light I displays only four colors at a time (one background shade and three object colors). From these colors shading is performed. When you are ready to select colors for the palette, C-Light I displays a rainbow made up of default selections that you can change. This method is useful for determining how each of your choices will look next to the others. The feature has a small cosmetic problem, though: A flashing purple scan line remains under the menu bar after you exit the mode.

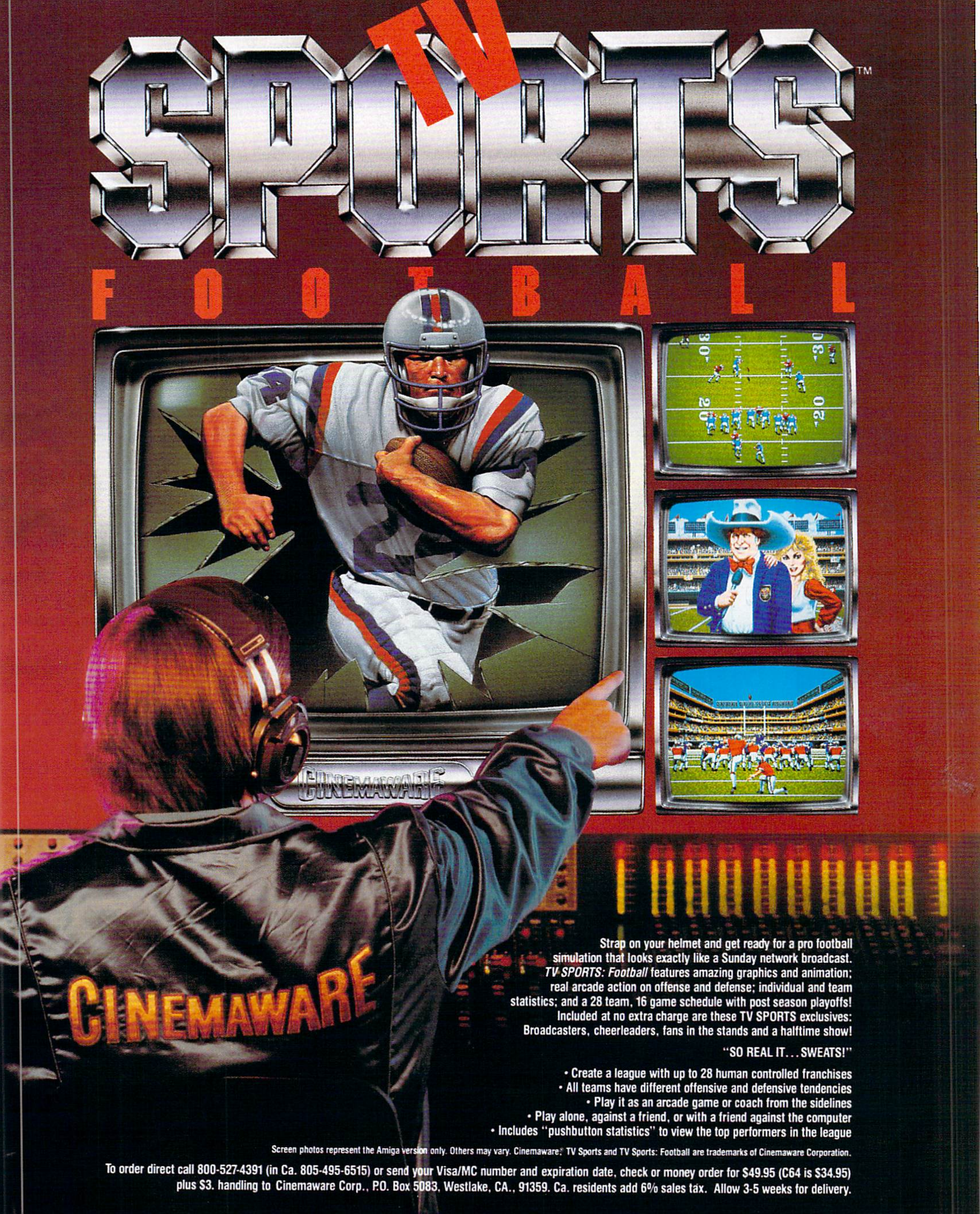
Now that you have set your pieces on stage (each scene accommodates up to 170 objects), you can call in the lighting crew. C-Light I allows as few as one light source and as many as 170. You position light sources the same way as you place objects; the only difference is that you cannot rotate lights or alter their size or color. Lighting instruments radiate in all directions, but are themselves invisible within a scene.

The View gadget in C-Light I lets you manipulate whole scenes in much the same manner as objects. A large cube represents the scene; you can expand or contract it, and rotate it in any direction and by any degree. Resulting changes are displayed in a second cube (in a different color), so that you can compare the altered version to the original. This capacity is useful for simple panning; you can generate several pictures with increasing or decreasing X-coordinate values. You can also zoom into or out of scenes by changing the value of the Z coordinates in the same way.

C-Light I's Eye gadget adjusts the viewer's distance from the scene. Perspective increases and distortion decreases the closer you place the "eye" to the stage; the opposite is true for moving away. While you can now move the viewpoint in only two directions, the manual states that others will be added if users request them.

Act Two

The Video module works in much the same way as Preferences in Workbench. The program starts by asking you whether you are using an NTSC (National Television Standards Committee) or PAL Amiga. You must also choose whether your picture will be overscanned (352 × 480) or not, and interlaced or non-interlaced. The settings are stored and used by C-Light II to generate the picture. ►



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C-Light II begins its start-up sequence by requesting you to set (with sliders) the light level for all light sources and an ambient-light level for the entire scene. (Default settings for the sliders are loaded with the program.) Another slider controls the level to which colors blend into one another. Triggering the Alias control turns on a anti-aliasing routine to reduce jaggies, and selecting Shadow causes objects to cast shadows (otherwise light will pass through undisturbed). Both features add to the time required to generate a picture.

Rendering time also depends a great deal on the number of objects and light sources you have used. In my tests, fairly simple scenes required generation times of about one hour, but complex pictures took up to two days (I do not have a 68020 or 68881 board). All scenes are saved in the standard HAM format. View, a stagehand utility, lets you see completed pictures.

The C-Light package is easy to learn and use. On-line help is included, and the well-written manual provides complete explanations and a comprehensive tutorial. 512K is required to generate ray-traced pictures, but to use the on-line help feature, one meg is recommended. The program is fully multitasking and not copy-protected. A new version has come onto the market as we go to press. It includes utilities for creating and replaying animation, and promises to banish menu-bar flicker. I highly recommend C-Light to anyone interested in ray tracing, and especially to beginners.

C-Light
Ronald Peterson
PO Box 614
Milford, NH 03055
$49
512K required.

FinePrint

Gray is beautiful.

By Morton A. Kevelson

GRAY-SCALE DOT-MATRIX printouts of Amiga graphics displays have traditionally lacked contrast and resolution. With FinePrint, though, your dot-matrix printer can produce highly-detailed, quality images.

FinePrint uses multiple overstrikes on a well-worn ribbon to build up layers of ink. As a result, FinePrint can employ the maximum resolution of your dot-matrix printer to create a 16-level gray-scale graphic dump. By comparison, the Amiga's Preferences printer drivers simulate a 16-level gray scale with a four-by-four dot pattern, thus effectively cutting your printer's resolution by a factor of 16.

For copy protection, FinePrint asks you to enter a specified word from the manual when you boot. You need a cloth-ribbon dot-matrix printer (ink-jet, thermal-transfer, and laser printers need not apply) to use the program. It works best with a well-worn ribbon—the more worn the better. FinePrint will strike a dot up to 15 times to create various intensities. With a fresh ribbon, you will achieve black at the third or fourth strike. A moderately-worn ribbon can take seven or eight hits before the ink fully saturates the paper. Only with a

Continued on p. 78

For the beginner . . . to the advanced!



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Abacus
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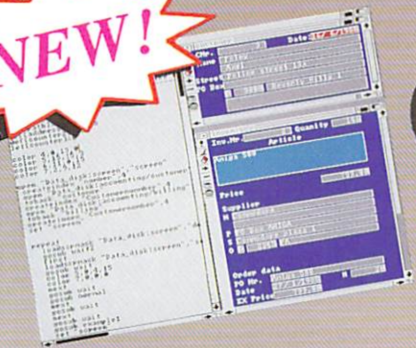
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BASIC by the Numbers

With "The World Turned Upside Down" this month, readers share their BASIC programming problems and solutions.

By Bob Ryan

57 Solicitations

EVERY MONTH, I solicit questions and comments from readers. This month's column is built around the letters I have received. The contents are made possible by the willingness of Amiga owners to share problems and solutions with one another. I would like to thank everyone who has contributed to this column by sharing their questions and solutions with the rest of us.

58 Amiga Basic Window Sizes

JIM MARRONE OF Berkeley, CA sent in this handy chart for determining the maximum size of an Amiga Basic window. Jim's chart tells you the maximum dimensions of a window (with and without a sizing gadget) on a screen of any resolution.

Maximum Window	Screen Resolution	Sizing Gadget
(0,0) — (631,186)	640 × 200	No
(0,0) — (617,186)	640 × 200	Yes
(0,0) — (631,386)	640 × 400	No
(0,0) — (617,386)	640 × 400	Yes
(0,0) — (311,186)	320 × 200	No
(0,0) — (297,186)	320 × 200	Yes
(0,0) — (311,386)	320 × 400	No
(0,0) — (297,386)	320 × 400	Yes

59 Active and Current Windows

IN THE JUNE '88 installment of the column, I stated that you could not specify the current window from inside a program. Donald Brown of Long Beach, CA has come up with a partial solution for this problem. Donald notes that you can use the following syntax to make a current window active. You first define a window and later redefine it with the same name, as in:

```
WINDOW 2,"TEST",(10,10)-(100,100),27,1: 'initialize window
WINDOW 2,"TEST": 'window becomes current and active
```

As Donald points out, the disadvantage to this method is that it erases the previous contents of the window. However, this method is useful if your program does not require that the previous contents be preserved or if you can reconstruct its contents.

Donald also cleared up the difference between the statements WINDOW 2 and WINDOW OUTPUT 2. WINDOW 2 brings the window to the front and makes it current. WINDOW OUTPUT 2 makes the window current without bringing it to the front.

60 Insomnia Solution

JOHN EVERETT OF Memphis, TN has a solution that cures the "extra input event" problem mentioned in #42 in the July '88 installment. John notes that you can use the SLEEP statement and shut down the program without requiring an extra input from the user, if you exit the program from the subroutine instead of returning to the main loop. This eliminates the need for another input event to exit the SLEEP loop.



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61 Using Your Memory Wisely

MEMORY MANAGEMENT is a common problem with Amiga Basic programmers. I get more letters asking how to free up memory for BASIC programs and data than I do on any other subject. Most people want to clear more memory for large programs and array storage. They know they must use the CLEAR command for memory management, but they have trouble understanding the explanations in the Amiga Basic manual.

The CLEAR statement performs three functions; it resets all variables in a program to zero or null, sets the size of the BASIC data segment, and sets the size of the stack. Understanding these functions will enable you to put memory problems behind you.

To set all numeric variables to zero and all string variables to null, you simply use the CLEAR statement without parameters. Try this short program:

```
REM Clear Example
var1 = 5
var2 = 10
PRINT var1 + var2
CLEAR
PRINT var1 + var2
END
```

Every time you use the CLEAR statement, it resets the values in your variables. This is nice, but not as important as its other memory management functions.

The complete template for the CLEAR statement is:

```
CLEAR <,data segment><,stack>
```

Both the data segment and stack size parameters are optional. They can be either constants or variables.

The data segment of your program is the memory used to store your program and all its buffers and data variables. Most programs that come up th the Amiga Basic "Out of Memory Error" need a larger data segment. To increase the size of the data segment, you'd enter something like:

```
CLEAR,30000
```

The most common mistake in trying to clear large areas of memory is to forget to insert the commas in the CLEAR tatement. This omission usually results in an "Overflow Error." When you try to clear more than 32,767 bytes of memory with the CLEAR statement, the Amiga Basic editor will automatically convert the number you enter into a double-precision integer. For example, if you want to clear 100,000 bytes of memory, you would enter:

```
CLEAR,100000
```

When you hit Return, Amiga Basic automatically converts your statement into:

```
CLEAR,100000&
```

Since a single-precision integer cannot be larger than 32,767, Amiga Basic performs the conversion to allow you to clear larger areas of memory.

The stack is a temporary storage area used by a program. For example, when Amiga Basic calls a ROM kernal routine, it first saves the contents of the registers in the 68000 to the stack before executing the routine. You don't have to worry about manipulating the stack, but you do need to insure that it is big enough. The following statement increases the stack to 10,000 bytes.

```
CLEAR,,10000
```

Amiga Basic does not tell you when you are out of stack space. A stack error returns the same "Out of Memory Error" you get when you run out of data space. You have to use trial and error to determine the cause; first increase the data segment and, if that doesn't eliminate the error, then increase the stack size. Unless your programs use lots of subroutines, you will find most of your "Out of Memory Errors" are caused by a too-small data segment.

62 A Heap of Trouble

YOU CAN ALSO get an "Out of Heap Space" error when you run an Amiga Basic program. The heap is the free memory in your system that has not been reserved by your BASIC program or by any other task. Some Amiga Basic functions, especially the sound functions, utilize memory from the system heap. If you encounter this error, you should close other tasks you are running on the system. If this is impossible, you should decrease the size of your data segement or stack.

Decreasing the size of your data segment or stack can be tricky. To help you determine where you can use less memory, Amiga Basic provides the FRE( ) function.

The value you use with the FRE statement determines the information the function returns. For example:

```
x = FRE( - 1)
```

returns the number of bytes free in the system heap, while:

```
x = FRE( - 2)
```

returns the total number of bytes that have never been used by the stack. This can be very helpful in determining just how small you can make the stack without running out of stack space.

If you use any value other than −1 or −2 with FRE( ), it returns the number of unused bytes in the Amiga Basic data segment. This function can tell you when you have devoted too much space to the data segment.

By judicious use of FRE( ) and CLEAR, you can maximize the memory efficiency of your BASIC programs.

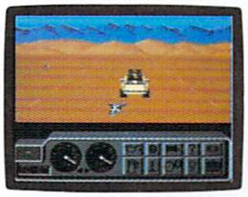
63 Beyond Extend

LAST MONTH, I mentioned Extend, an Amiga Basic extension package from SunSmile Software (533 Fargo Ave., Buffalo, NY 14213, 716/885-5670). As the issue went to press, I learned of an upgrade to Extend. The upgrade adds about 20 functions to the Extend library. Among the new functions are an IFF-picture loader, an IFF-picture saver, and a Scroll function that lets you scroll a lo-res 640 × 400 picture on a 320 × 200 screen. The best news is that SunSmile has dropped the price of Extend. Check it out. ■



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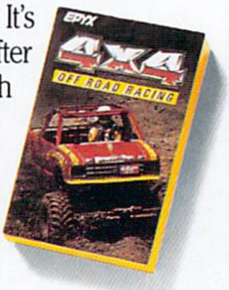

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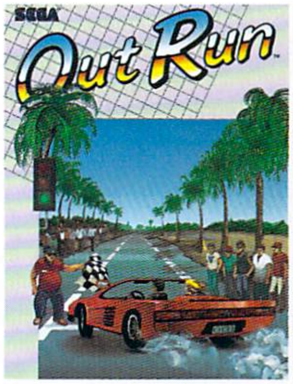


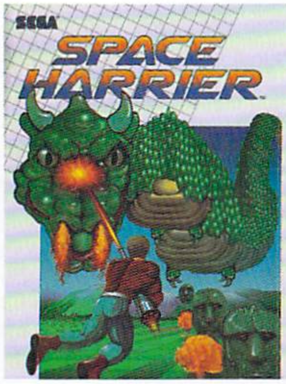
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AMIGAWORLD TOP 40 GAMES



First it was the Lucky Strike Hit Parade, and then Dick Clark's American Bandstand and ''submarine watching'' with Murray The K, and so on all the way to Judy Brown of Club MTV and Casey Kasem's American Top 40. Well move over and make room for Bob Ryan and the *AW* All Stars because we're spinning the hottest disks in town with the first ''*AmigaWorld* Top 40 Games'' smash special. So grab your joystick and twist the night away!

THE ''ALL STARS'' making these selections are, in truth, a motley crew of *AmigaWorld* contributors and editors who between them have played just about every game released for the Amiga. The testers rated the games in three areas: entertainment value (Is the game fun?), quality of presentation (Does it have good graphics and sound?), and durability (Does it keep its appeal for a long time?).

In true AM-pop-radio style, our selections start at No. 40 and count down to No. 1. A game category line follows the title of each game (see the sidebar ''Typecasting'' for explanations of each category). The manufacturer's name and price also appear in the heading for each game. For further company information—address, telephone number, and so forth—consult the Product Information box at the end of the article.

We list only games that were available from dealers at the time this issue was put together. This automatically eliminates games such as Slapshot! (Bethesda Softworks), Universal Military Simulator (Rainbird), and Dungeon Master (FTL) that at press time were still in the late stages of development. We will review these and other eagerly anticipated titles as soon as they are completed (and without doubt we will put together another Top 40 listing next year).

Once we settled on the Top 40, the editors gathered to pick the best game in each category and the Number One Amiga Game of All Time (up to now, that is). The winner may surprise you; it surprised us. Now, let's check the charts. ►

By Bob Ryan and the *AW* All Stars: Linda Barrett, Michael Brown, Bill Catchings, Roger Goode, Morton Kevelson, Shawn Laflamme, Sheldon Leemon, C. W. Mann, Neil Randall, Wayland Strickland, Mark Van Name, Lou Wallace, Guy Wright

DIGITIZED ART BY ROGER GOODE SCREEN DUMPS COURTESY OF PHILADELPHIA VIDEO LAB

40 Ports of Call

Action/Strategy

Aegis Development
$49.95

Only the inclusion of inane arcade sequences kept this superb simulation from getting a better position in the Top 40. Ports of Call lets you control a shipping line. You decide which ships to buy, which cargoes to haul, and which ports you want to visit. Make more money than your competitors and you win—a slice of Americana.

39 RoadWar 2000

Action/Strategy

Strategic Simulations Inc.
$39.95

In the aftermath of bacteriological warfare, you've got to round up the eight U.S. scientists who can save the world. The problem is that the U.S. has sunk into anarchy. You must organize a road gang and reestablish order in the country while searching for the scientists. Just watch out for the other road gangs.

38 Defender Of The Crown

Action/Strategy

Cinemaware
$49.95

With Defender, Cinemaware began a new genre in computer games, graphically intensive games with cinematic style and techniques. The game concept is based loosely on the board game Risk, with you being the leader of one of the several small kingdoms that make up the divided medieval Britain. Your must conquer your neighbors by building an army and sending it into battle. Along the way there are several arcade-like sequences—such as sword fights, jousts, and catapult attacks on the castles—and like any good movie it has love scenes!

"The game isn't much, but Defender is the best graphics demo I own."—Lou Wallace

37 Phantasie

Role-Playing Adventure

Strategic Simulations Inc.
$39.95

Things are bad on the island of Gelnor. Ever since The Invasion, the evil Nikademus has been sending out monsters and Dark Knights to terrorize the land. Your job is to form a party of adventurers to find the nine magic rings and the wand of power, destroy the Dark Knights, and defeat Nikademus. No problem. There are ten dungeons to explore, 11 cities, 80 different types of monsters, 60 types of weapons, 40 types of shields and armor, over 60 different magic spells, 20 different potions, 15 types of characters, six different professions, and on and on. The box states "playing time: 30 to 60 hours"; that's once you know the rules.

"You don't just play Phantasie, you devote a good portion of your life to it." —Guy Wright



RoadWar 2000

36 Balance of Power

Strategy

Mindscape
$49.95

You assume the role of the President of the United States or the General Secretary of the Communist Party of the USSR in this nightmare simulation of superpower geopolitics. Playing a decent game requires a lot of work; to actually win requires more effort than most people are willing to put into a computer game. Still, if you're looking for a game that has real depth, look no further.

"A great simulation. Unfortunately, it's about as slow-paced as real life geopolitics. How many times do you feel like invading Angola?"—Bill Catchings

35 King's Quest III

Graphics Adventure

Sierra On-line
$49.95

King's Quest III is the third and best in the trilogy of colorful 3-D graphics adventures from Sierra. You control the cartoon-like characters' movements as they walk about the screens. As Gwydion, a young man enslaved by the evil wizard Manannan, you must escape using Manannan's magic against him. If you can get away, you must then sail across the seas to rescue a fair princess from a fire-breathing dragon.

34 Capone

Arcade

Actionware Corporation
$39.95

You are a cop and the Capone gang is across the street gunning for you. Kill as many as you can before they get you. This game has everything an arcade junk- ►



"Outside the blouse, mister, we're not playing Silent Service!"

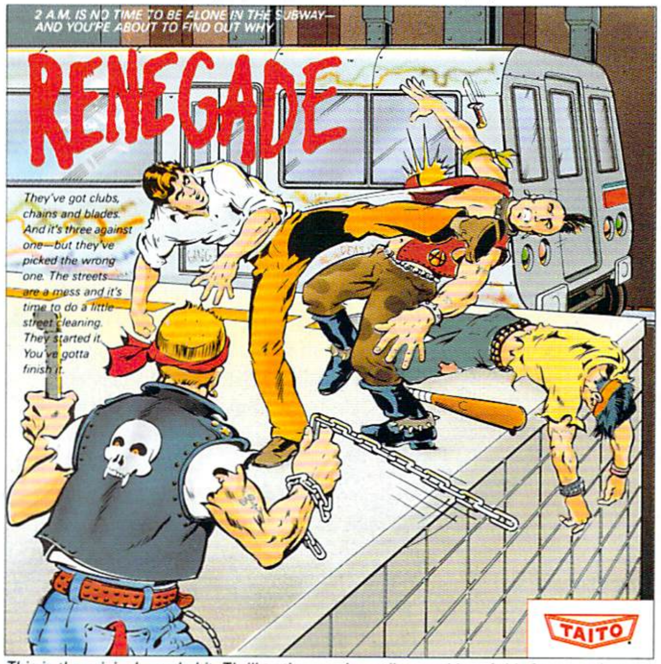
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COMING SOON, THE CLASSIC MIND GAME, QIX.

ie could ask for—digitized gunshots, excellent graphics, and fast action. While it can be played with the mouse, Capone comes alive when you use the Actionware light gun (optional $49.95). Capone is a must for anyone who thinks that speed and action are all an arcade game needs.

"No strategy here, just fast-paced mayhem."—Roger Goode

33 Leader Board

Sports

Access Software Inc.
$34.95

An early Amiga game, Leader Board makes golf easy to learn and master. With adjustable levels of difficulty, competition between players of unequal skills evens out. One to four players can play at the same time. Four courses are included on the main disk, while the companion tournament disk offers more variety. For casual fun, Leader Board is the best of the golf simulations.

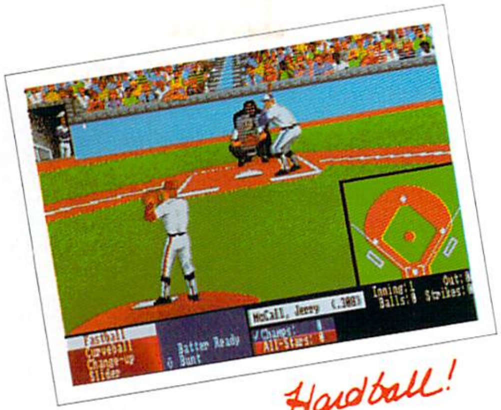
32 Sherlock: The Riddle of the Crown Jewels

Text Adventure

Infocom
$39.95

The Crown Jewels have been stolen from the Tower of London and you, as Doctor Watson, have a single weekend to recover them with the help of your friend Sherlock Holmes. Your only clue is a note full of riddles from the thief (or thieves). You realize, of course, that this one clue is most probably a trap. Sherlock is a wonderful game that even provides hints if you get stuck.

"An Infocom tour de force with great digitized sounds."—Shawn Laflamme


Hardball!

31 One-on-One

Sports

Electronic Arts
$19.95

One of the first Amiga games, One-on-One is still among the best. You compete against the computer or another player in a one-on-one basketball game. One player assumes the identity of Dr. J, and the other takes the part of Larry Bird. Then it's nothing but in-your-face basketball until the final buzzer.

"This one qualifies as a classic."
—Mark Van Name

30 Leisure Suit Larry in the Land of the Lounge Lizards

Graphics Adventure

Sierra On-line
$39.95

To show you that all adventure games are not centered on fairy tales, Leisure Suit Larry puts you smack dab in the middle of the "real world," complete with cars, bars, bums, and fast women. Larry is a lonely man, and your job is to help him find the right girl while looking in all the wrong places. This is not a children's game, nor is it for the easily offended. If you are an adult with an off- ►

Test Your Game IQ

1. After you pause a game of Arkanoid, which sequence of keys do you press to activate the "cheat" mode?
   A. rickross RETURN
   B. ESC taito ESC
   C. dsimagic RETURN
   D. icheat RETURN

2. What does the dragon do when you win a game of Shanghai?
   A. Blink
   B. Breathe fire
   C. Fly away
   D. Shrug

3. In Gettysburg, where do you find the one square that is a victory objective for both the Union and Confederate players?
   A. In the town
   B. On Cemetery Hill
   C. On Little Round Top
   D. Beside Spangler's Spring

4. In Bard's Tale, on which street do you find the Review Board?
   A. Blue Highway
   B. Main
   C. Trumpet
   D. Serpent

5. In The Three Stooges, which song turns Curly into an imitation of Mike Tyson?
   A. "Three Blind Mice"
   B. "Thriller"
   C. "Pop Goes The Weasel"
   D. "Camptown Races"

6. In Roadwar 2000, where do you have the best chance of fighting another gang?
   A. Detroit
   B. Any oil field
   C. The secret laboratory
   D. The Gulf Coast

7. You are on your opponent's 15-yard line, one second left, down by two. In Gridiron!, which play do you call?
   A. 1
   B. 10
   C. 19
   D. 25

8. In Silent Service, from which port does the Bowfin leave on its 1944 patrol?
   A. Fremantle
   B. Brisbane
   C. Pearl Harbor
   D. Midway

9. In the World War I mode of Flight Simulator II, in which direction do you fly to find the enemy?
   A. North
   B. South
   C. East
   D. West

10. In the Towers scenario of Breach, what do you use to gain access to your objective?
   A. Crack Unit
   B. Grav Belt
   C. Stimulant
   D. Shield

Answers to quiz on p. 42

From Origin comes the long-awaited sequel to the award-winning Ultima™ III

Ultima IV

Quest of the Avatar

Available on Amiga.



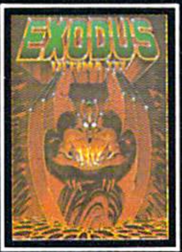
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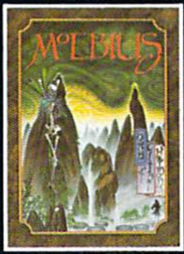
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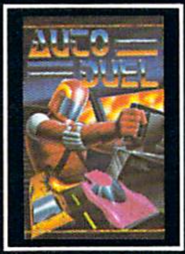
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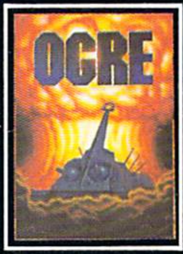
ULTIMA™ III sends you on an incredible fantasy role-playing journey through monster-plagued Sosaria in search of the elusive Exodus.



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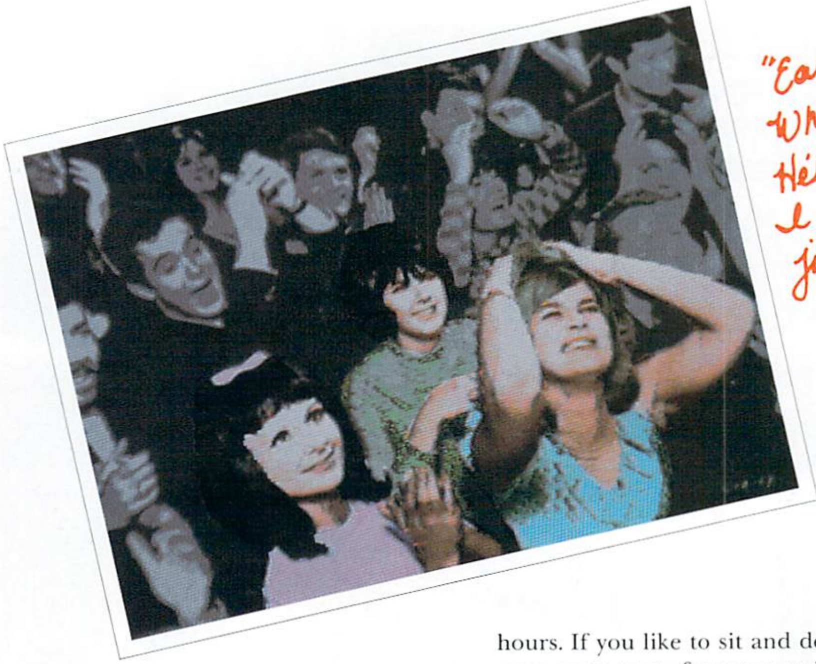


AUTODUEL™ is a futuristic, fast-paced strategy role-playing game where the right of way goes to the biggest guns.



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"Earl Weaver! What a dream. He's so cool I could just die!"

color sense of humor, you will enjoy steering Larry through the lounges.

"Where did I put my breath mints?"—Morton Kevelson

29 Hardball!

Sports

Accolade
$44.95

Hardball! is a baseball game for people who like to get into the action. You make the pitches, swing the bat, and run down the long fly balls. Although Hardball! contains simplified statistical data on fictitious players, the real action is on the field, not in the dugout. Pit yourself against the computer or a friend in a great new version of the grand old game.

"The best pitcher-batter game available."—Neil Randall

28 Gettysburg: The Turning Point

Strategy

Strategic Simulations Inc.
$59.95

Gettysburg is one of SSI's finest war games. You control the brigades of the Army of Northern Virginia or the Army of the Potomac in this simulation of the biggest battle of the American Civil War covering the three days from July 1 to July 3, 1863. There are dozens of options during each phase of play, and, like most SSI games, one game can take up to 40 hours. If you like to sit and deliberate over every move for every unit, if you are more interested in military tactics than blasting aliens, or if you are a civil war buff, Gettysburg is Nirvana.

27 Guild of Thieves

Graphics Adventure

Rainbird
$44.95

So you think that a life of crime is a breeze? Well it's going to take more than nimble fingers and luck to prove yourself to the Kervonian thieves Guildmaster. You are going to need a sharp mind and wit to solve this sequel to The Pawn. Your mission is to ransack a well guarded mansion, go grave robbing, and . . . you get the idea. The game has very good graphics and puzzles, one of the best parsers in the business, remarkable depth, and numerous extras like programmable macro keys for often-used commands.

26 The Three Stooges

Action/Strategy

Cinemaware
$49.95

Moe, Larry, and Curly get into pie fights, prize fights, and sundry other adventures in order to earn cash and save the orphanage. From the opening joke to the final credits, this game brings the Three Stooges alive in the '80s. The arcade sequences are good (and sometimes hilarious), and the story line that holds them together is classic Stooges.

"Finally! A Cinemaware game that doesn't leave out the game."—Sheldon Leemon

25 Stellar Conflict

Strategy

PAR Software
$39.95

Play the game of Risk on an interstellar scale. You must expand your control over a galaxy of star systems, while up to three computer- or human-controlled opponents try to do the same. Stellar Conflict is neither flashy nor complicated, but it is a lot of fun. By keeping the game mechanics simple, the game lets you concentrate on developing the strategy and tactics that will lead to victory. A refreshing change of pace from strategy games that come with 64-page manuals and take weeks of study.

24 The Zork Trilogy

Text Adventure

Infocom
$49.95

Zork was the first complex interactive fiction to attract a cult of followers who would stay up all night exploring and pillaging the Great UnderGround Empire. With its detailed descriptions and hundreds of rooms, Zork is a classic that spawned two sequels. Infocom combined all three installments into the Zork Trilogy. Zork is great fun, and still attracts new adventurers who love to travel its well-worn caves and sample its treasures.

"Zork should be bundled with every computer sold."—Lou Wallace ►



Bard's Tale 1

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Sub Battle Simulator



23 Flight Simulator II

Flight Simulators

subLOGIC Corp.
$49.95

One of the golden oldies, Flight Simulator II is greatly improved by the Amiga's graphics and sound. You control a Cessna 182 single engine or a Gates Learjet 25G aircraft with full instrumentation and a 3-D graphic view of your surroundings. Connect two or more Amigas via modem or cables, and you can fly with friends. The additional high-density scenery disks ($24.95 each) let you fly in and out of most of the country's major airports, as well as hundreds of smaller ones.

22 Marble Madness

Arcade

Electronic Arts
$49.95

Marble Madness, one of the early arcade hits on the Amiga, is based on the coin-op game of the same name. Using a mouse, joystick, or trackball, you direct a rolling ball through a series of three-dimensional, elevated mazes in a certain amount of time. If you miss a turn or ramp or get zapped by the baddies, you fall to your death. The 3-D graphics and realistic motions of the marble make this one of the top arcade games.

"My favorite two-player game for the Amiga."—Bill Catchings

21 Faery Tale Adventure

Role-Playing Adventure

MicroIllusions
$49.95

Faery Tale Adventure is a giant-scale adventure game where you wander through the countryside gathering keys, treasures, weapons, and information. You are presented with a marvelous scrolling aerial view by which you explore caves, castles, deserts, forests, and mazes, all filled with numerous villains trying to kill you. As you progress through the land, you gain experience and your skills improve. Faery Tale Adventure boasts over 17,000 screens; even if you never "win" the game, you should enjoy the wandering.

20 Sub Battle Simulator

Action/Strategy

Epyx
$39.95

Not satisfied with simulating individual war patrols, Sub Battle Simulator lets you take command of a World War II American sub or a German U-boat for the duration. Sub Battle Simulator is not as focused as Silent Service (MicroProse)—it has you performing some duties that would be handled by underlings in a real sub—but the variety of patrols and situations it offers is unsurpassed.

19 Grid Start

Arcade

Anco Software
$24.95

One of the better racing games, Grid Start lets you pick from six famous Formula I tracks using three levels of difficulty. You drive the six-gear car with a joystick, competing against 23 computer-controlled opponents. When you know what you are doing, you can join the grand circuit and compete on all six tracks. The graphics and sound effects are good, and the price is right.

"The best thing is that you don't accumulate insurance surcharges when you crash."—Shawn Laflamme ►

Of Dubious Distinction

Just as every silver lining has a cloud, every Top 40 release has a flip side, those less fortunate game titles that are collecting dust on your dealer's shelves. Without further ado, here are the *AmigaWorld* Dubious Distinction in Gaming Awards.

The **Vaporware That Should Have Stayed That Way Award** goes to **Return to Atlantis** from Electronic Arts. Admittedly, after two years of hype, our expectations were a bit high, but this game is more than a bit of a dud.

The **Dive, Dive, Dive Award** goes to **The Hunt For Red October** from DataSoft. We keep hoping that it never resurfaces.

The **What If They Had a War and Nobody Came Award** goes to **Age of Sail** from Conflict Recreations and **Blitzkrieg in the Ardennes** from Command Simulations. Is this what General Sherman meant when he said "War is hell"?

Taking home the **Old Jeans Award** is **Aaargh!** from Arcadia. The game starts out strong, but fades very quickly when you realize that it is ridiculously easy to win.

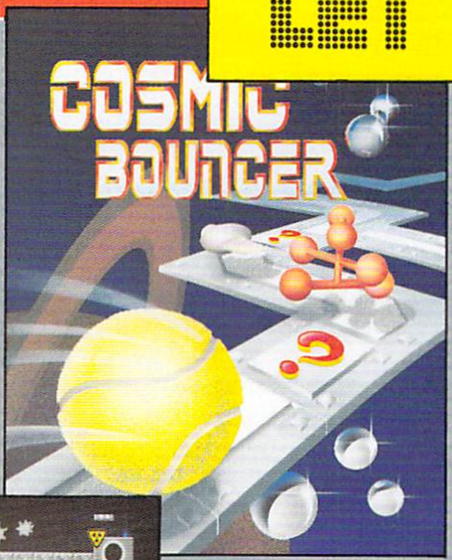
The **Worst Idea Award** goes to **Portal** from Mediagenic (formerly Activision). This "revolutionary game" turned out to be nothing more than a mediocre science-fiction novel on three disks. Do you know how many good science-fiction novels you can buy for $50?

The **Best Idea Award** goes to **Mediagenic** (formerly Activision) for killing Portal. □

Chessmaster 2000



LET THE GAMES BEGIN!





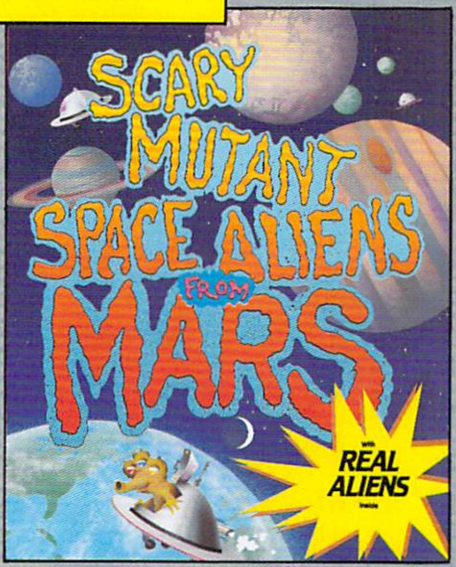
Cosmic Bouncer

A freak computer mishap momentarily fired a genetic space-beam giving you, a lonely tennis ball, new life. Bounce your way over the ever changing path, but beware: the death squares, mystery tiles, disappearing floors and super-bouncers will require everything you've got! Complete over 20 scrolling levels to earn the title of Cosmic Bouncer! An addictive game for only $29.95.

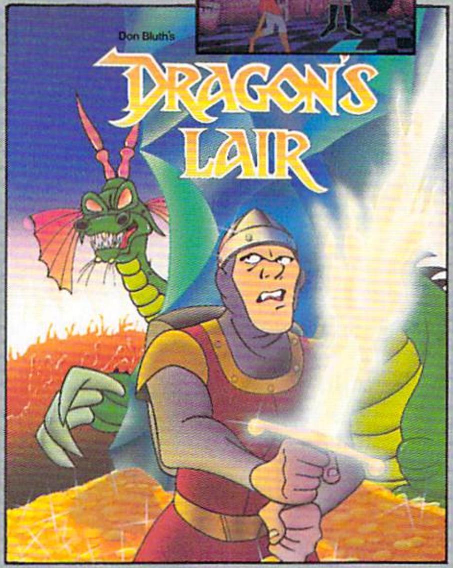


Scary Mutant Space Aliens From Mars

Pack your bags and catch the next shuttle to Venus before the Scary Mutant Space Aliens From Mars invade Earth! S.M.S.A.s From Mars is a new multi-tasking, illustrated text-adventure with a comic twist. Features include: digitized graphics and sound, superbly animated fighting sequences, instant maps, programmable function keys, quick-click controls, and humorous yet challenging puzzles. $39.95.







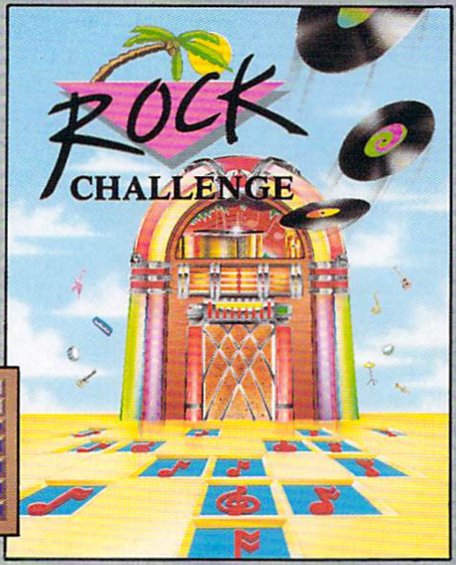
Don Bluth's Dragon's Lair

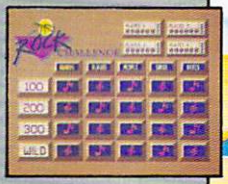
Dragon's Lair, the laser disk game that revolutionized the arcade industry comes to the Amiga! Featuring high quality real-time cartoon animation packed onto six disks, Dragon's Lair pushes the Amiga's graphics capabilities to the limit. You control Dirk the Daring, a knight on a quest to rescue the fair Princess Daphne from the clutches of Singe the Dragon. Your quest awaits for $59.95. (Requires one MB RAM.)

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Typecasting

As game design has become more sophisticated, fitting a game into a nice, neat niche—arcade, strategy, or adventure—has become quite difficult. We pushed all the fence straddlers to one side or the other in our Top 40 and came up with the following eight categories.

Arcade

These are the games your parents never wanted you to play. Using a joystick or mouse, you shoot, catch, avoid, or deflect objects that appear on the computer screen. Although many arcade games require a good deal of strategy, the emphasis is on skill with a mouse or a joystick.

Action/Strategy

This category contains strategy games that have arcade or arcade-like elements. At best, the arcade aspects are flawlessly integrated into the play of the game, as in the combat sequences in Silent Service. In less well-designed games, the arcade sequences seem to have been thrown in as an afterthought. Some excellent pure strategy games have been rendered unplayable by the inclusion of bad arcade sequences.

Sports

These games simulate the play of a particular sport, such as golf, basketball, or baseball. Although some sports games (Leader Board, for example) stress arcade skills while others (such as Earl Weaver Baseball) stress strategy, we lump them together because their basic appeal is in the fact that they let you live out your sports fantasies.

Text Adventures

Best exemplified by the Zork Trilogy, text adventures lead you into imaginary worlds where you progress and prosper based upon your wits. The worlds are created by the descriptions supplied by the game. You specify your actions by typing instructions at your keyboard. The best adventure games have powerful translation routines (parsers) that translate your words and phrases into commands that the game can understand.

Graphics Adventures

Also called illustrated adventures, these games use computer-generated pictures to enhance or replace a text description of an imaginary world. Graphics adventures usually have less sophisticated parsers than text adventures (Firebird games are an exception) and usually have shorter or less detailed plots. Graphics adventures are to text adventures as movies are to books.

Flight Simulators

These are programs that put you into the cockpit of a flying machine. They feature ever-changing 3-D graphics that simulate the movement of an airplane through the skies. The computations required to change your display screen to reflect changes you've made in speed, altitude, and direction are incredibly complex. The best flight simulators sustain the illusion of flight by updating the display screen many times per second.

Role-Playing Adventures

You band some adventurers together, equip them with whatever you can afford from the local store, and send them out to an uncertain future, with the ultimate objective of wiping out some monsterously evil being. The challenge of these games is to develop characters that can overcome the final obstacle. These games normally take longer to complete than any other type of game.

Strategy

Hand-eye coordination and a quick trigger-finger take a back seat to excersizing your gray matter. These games require a lot of thought. They include abstract games such as Chessmaster 2000 and Shanghai, as well as games based upon real-life situations, such as Balance of Power and Gettysburg. The best strategy games are the most challenging computer games. □

18 Uninvited

Graphics Adventure

Mindscape
$49.95

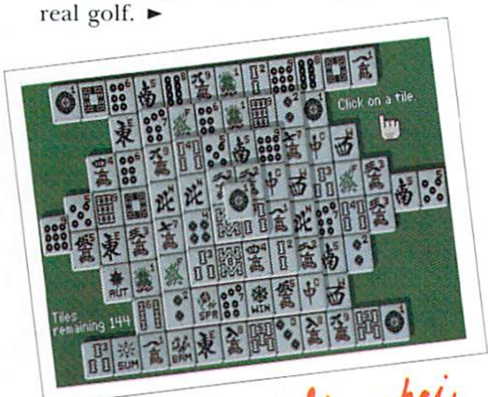
A good gothic ghost story, Uninvited has spooky graphics, detailed scenes, eerie digital sounds, and an excellent plot. Unlike other adventure games (text or graphics), Uninvited requires almost no typing. Instead you control the action with the mouse, icons, and windows. Where other adventure games fail to respond to the majority of the objects they show or mention, Uninvited will describe nearly everything on the screen.

17 Mean 18: Ultimate Golf

Sports

Accolade
$44.95

As you might expect from a golf simulation, Mean 18 does not rely on fast and furious action, but on skill. Timing is everything when you make your shots, and strategy goes out the window if you can't hit the ball well. While Mean 18 does not have the best graphics of all the golf games, it plays the best. It adds an element of realism by offering a selection of famous courses (and an optional course disk for $19.95), or you can design your own with the course editor. Mean 18 is just as frustrating and fun as real golf. ►



Shanghai



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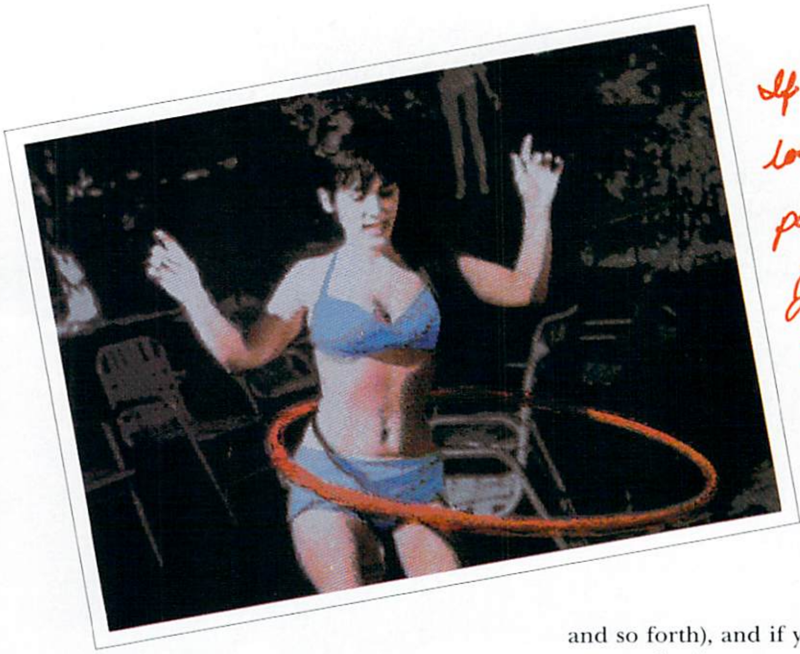
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If I could just lose 5 more pounds maybe Joey will play Marble Madness with me.

16 Bard's Tale I

Role-Playing Adventure

Electronic Arts
$49.95

Bard's Tale is a fantasy role-playing game loosely based on the concepts that began in sword-and-sorcery role-playing games. It puts the Amiga in the position of the Dungeon Master while you concentrate on exploring the world of Skara Brae, a land under the control of the evil mage Mangar. You lead a ragtag band of characters of different races and talents, from warriors to thieves to wizards. The longer they can stay alive, the more powerful they become as they explore the many dungeons and mazes filled with all types of evil creatures. Bard's Tale has beautiful 3-D scrolling graphics, digitized sounds, and animated monsters that will thrill even the most jaded adventurer.

15 Breach

Action/Strategy

Omnitrend Software
$39.95

A tactical-level role-playing combat game, Breach puts you in charge of up to 20 marines in any of 16 scenarios. The game includes additional scenario disks, or you can create your own with the scenario editor. You battle up to 40 sci-fi creatures, use up to 20 different objects (bombs, weapons, tracking devices, and so forth), and if you are successful, your main character gets better at shooting, running, and surviving. The game is easy to learn, and Breach fanatics are developing dozens of scenarios and posting them on line.

14 Gridiron!

Sports

Bethesda Softworks
$49.95

This football game comes up a little short in the graphics department, but it can't be beat as a simulation of NFL football. Gridiron! lets you create a repertoire of plays to use against a computer or human opponent; it then lets you execute your plays as the quarterback on offense or the player of your choice on defense. You'll need the shrewd judgement of Don Shula combined with the improvisational skills of John Elway to win big in Gridiron!

"The most underrated Amiga sports game."—Neil Randall

13 Plutos

Arcade

Mindscape
$29.95

Plutos is pure arcade action. You pilot your ship over a high-tech, outerspace landscape and blast everything in your path. Smooth-scrolling screens, detailed and colorful graphics, and good sound effects ensure that this game never loses its appeal. A two-player option lets you compete or cooperate with another player.

"The best two-player shoot-'em-up available for the Amiga"—Bob Ryan

"Buy a rapid-fire joystick."—Linda Barrett

12 Hitchhikers Guide To The Galaxy

Best Text Adventure

Infocom
$14.95

The software adaptation of the hilarious book and TV show by Douglas Adams, this is the best and funniest of Infocom's text adventures. You assume the role of poor Arthur Dent, who has his house and his home planet destroyed in the same morning. Forced to escape with your friend Ford Prefect (recently discovered to be an alien), you roam space and time in search of the ultimate question (the answer is 42).

"Ha! I finally got the damn babel-fish!"—Lou Wallace

11 Deja Vu

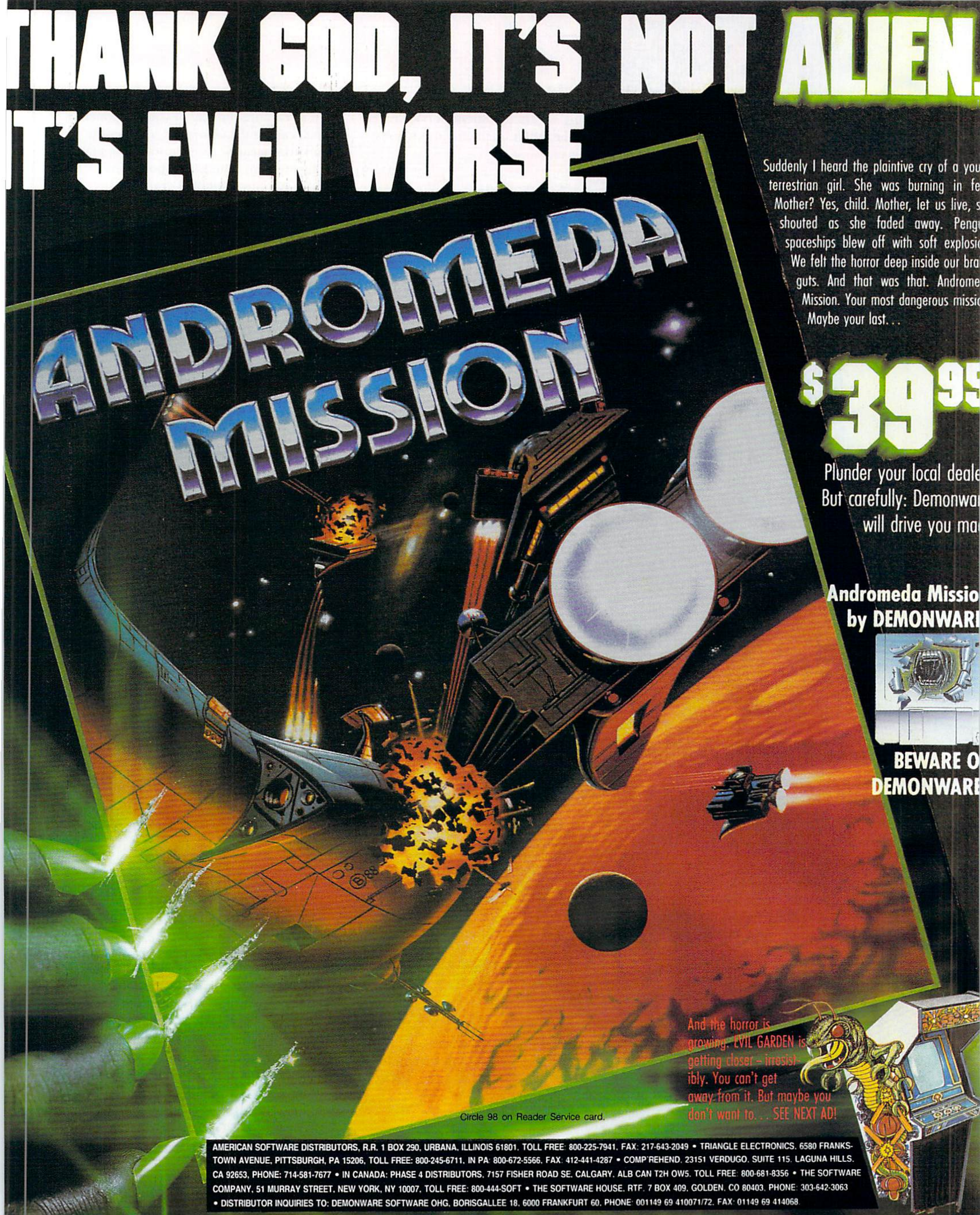
Best Graphics Adventure

Mindscape
$49.95

Deja Vu places you, a 1940s detective, in the bathroom of a bar with a terrible headache and no memory. You job is to discover who you are and who did it (and for that matter, what it is). If you're too groggy to type, don't worry; the game is controlled by pointing and clicking. Deja Vu makes great use of the Amiga's graphics, sound, windows, and icons. The excellent story line lets you live out your Mickey Spillane fantasies. ►



Plutos


THANK GOD, IT'S NOT ALIEN.
IT'S EVEN WORSE.
ANDROMEDA MISSION
Suddenly I heard the plaintive cry of a you
terrestrian girl. She was burning in fe
Mother? Yes, child. Mother, let us live, s
shouted as she faded away. Pengu
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10 Jet

Flight Simulator

subLOGIC Corp.
$49.95

Flight Simulator II moves into the fast lane. Jet lets you pilot some of today's hottest fighters through a number of wild scenarios. Jet is a great flight simulator, but the "game" component could be better. One wishes for Silent Service-type patrols rather than open-ended missions that never end.

9 Fire Power

Arcade

MicroIllusions
$24.95

Fire Power was the first (and by far the best) of MicroIllusions' One-On-One series of games. You control a tank and want to capture the flag of your opponent (which can be the computer, another human sitting nearby, or even someone playing by modem). The game sports very smooth-scrolling, detailed graphics, incredible digitized battle sounds, and some of the best arcade action ever seen on a monitor. It's a winner.

"The best part is running over people. They go splat and leave a red stain." —Bill Catchings



"This one's going out to Leisure Suit Larry: Looking for Love in all the wrong places." ♡

8 Chessmaster 2000

Strategy

Electronic Arts
$44.95

If chess is the best strategy game, then Chessmaster 2000 is the best computer version of chess. If a chess-playing option exists, then it is probably included in Chessmaster 2000. Apart from its excellent graphics and dozens of options, the program plays everything from a fair game (including an option that throws in random mistakes) all the way up to master-level play (it won a chess program tournament a few years back). If you like chess, then Chessmaster 2000 is the best of the lot.

"Best chess-playing algorithm on any micro ever."—C.W. Mann

7 F/A-18 Interceptor

Best Flight Simulator

Electronic Arts
$49.95

F/A-18 Interceptor is without doubt the fastest flight simulator on the Amiga market. It is also the most fun. You have your choice of flying the Navy F/A-18 Hornet or the Air Force F-16 Fighting Falcon, taking off from land or the deck of a carrier. There are multiple modes of play, including Free Flight mode (where you are free to roam the skies), Practice mode (in which you are taught to execute incredible aerodynamic maneuvers), and Combat mode (if you can qualify for the mission). F/A-18 is not as complex a simulation as Flight Simulator II, but it is a far better game. Like most of the Amiga's best games, it uses digitized sounds and excellent, high-speed graphics.

"How do you slow this thing down?"—Lou Wallace ►

Answers to Game IQ Quiz

Give yourself one point for each correct answer.

1—C, 2—A, 3—A, 4—C, 5—C, 6—B, 7—C, 8—A, 9—A, 10—B

How You Rate

Perfect 10: You qualify as an Amiga Game Master. Take a bow, and perform a rigorous reality check. If you still think the mailman looks like Zaphod Beeblebrox, either check yourself into a mental health hospital or get a job as a game playtester.

7 to 9 points: You are an Expert. You've also been neglecting your job, your family, even Monday Night Football. Shame on you!

4 to 6 points: You are a Journeyman. You got a nice, safe score. You don't consume games, but games don't consume you. You consider yourself a sane, balanced individual. How nice. You are secretly concerned, however, because both Michael Dukakis and George Bush got the same score you did.

1 to 3 points: You are a Novice. Perhaps you've been working a little too hard lately. Why not relax for a while with your favorite Amiga game? After all, you don't want to be laughed out of your next users' group meeting.

0 points: You are a Rank Amateur. Your idea of a good time is using a spreadsheet to correlate your company's monthly sales figures with the current "in" color for power ties. Loosen up, okay? □

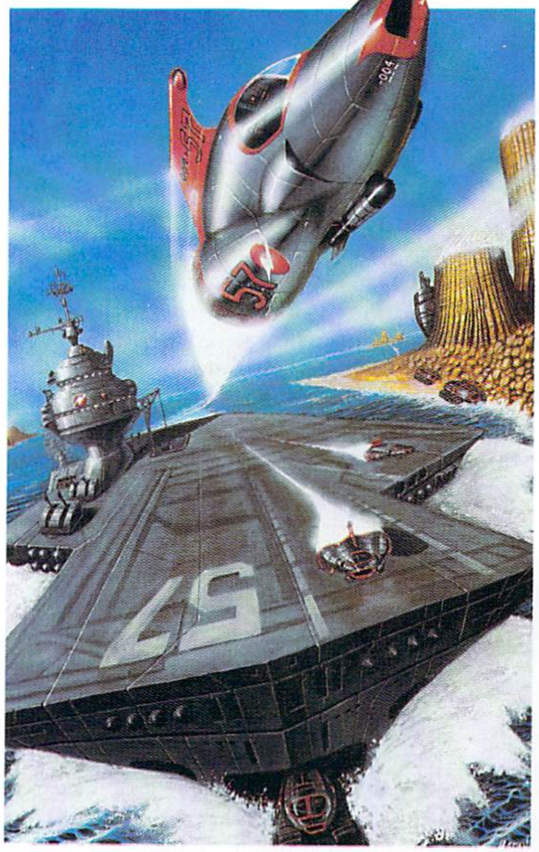
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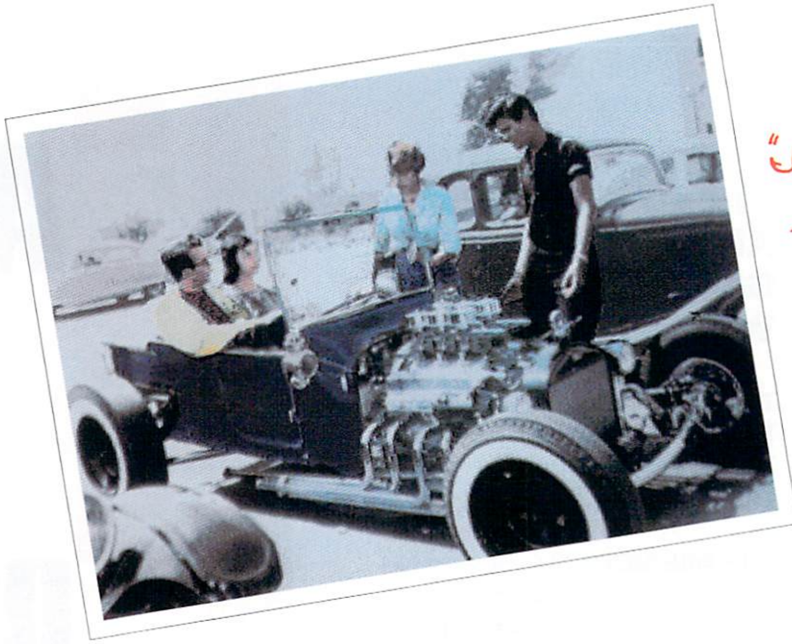
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"Puts you squarely in the hot seat, just as a great simulation should."—Bob Ryan



"It's a nice set of wheels, man, but I ain't trading my Emerald Mine for it."

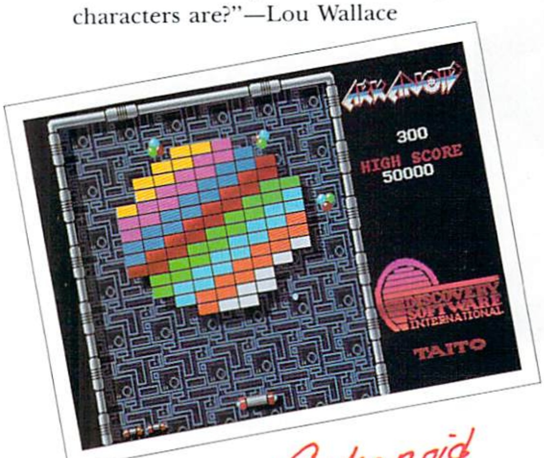
5 Bard's Tale II: Destiny Knight

Best Role-Playing Adventure

Electronic Arts
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Bard's Tale II gives its adventurers much more of what they liked in the first Bard's Tale game. Besides impressive 3-D graphics and digitized sounds, you have more evil monsters, new magic spells and magic items, more dungeons and mazes, plus six cities and a wilderness to explore while you attempt to find and reforge the Destiny Wand. You can import characters you created in Bard's Tale I with all their attibutes. The game is not protected, so you can install it on a hard drive, or play it from a RAM disk. This is an all around winner.

"It's 3 AM. Do you know where your characters are?"—Lou Wallace



Arkanoid

4 Shanghai

Best Strategy

Mediagenic
$39.95

Shanghai is one of those easy-to-learn solitaire games that become phenomenally addictive. It is loosely based on the oriental game of mah-jongg (it uses mah-jongg tiles, but that is where the connection ends). The tiles are laid in a complex pattern and you remove them in pairs. If you can remove them all, then you win—nothing fancy, good graphics. Shanghai does have that curious "just one more game" element that will leave you staring bleary-eyed at the screen well into the wee hours of the morning.

"It's perfect for people who don't like computer games."—Shawn Laflamme

3 Earl Weaver Baseball

Best Sports Game

Electronic Arts
$49.95

Although it includes an arcade option, this heavyweight simulation is not for joystick jockeys. Earl Weaver Baseball is the closest you'll ever get to managing a major-league baseball team. You can make all the moves available to the likes of Sparky Anderson and Tommy Lasorda, and you don't have to worry about being fired if you make too many wrong ones. The best feature of Earl Weaver Baseball is its ability to let you and your friends create your own league with players chosen from the rosters of major-league teams. This game is a must for everyone who loves the summer game.

"The only game I'd pay 50 bucks for. All that's missing is the hot dogs."—Linda Barrett

"My only complaint is how much of my life this one has claimed."—Bill Catchings

2 Arkanoid

Arcade

Discovery Software International
$29.95

If Arkanoid isn't the best arcade game for the Amiga, then it comes in a very close second. If you have played the arcade version of the game, then you have already played the computer version; they are almost identical. As in the old game of Breakout, you move a paddle across the bottom of the screen to defend against the ball getting by you and to bounce it back around the screen to destroy bricks. When you destroy all the bricks on the screen, you move up to the next level. Of course, there is much more than that going on. Things drift around getting in the way, capsules descend that give your paddle special powers, and each screen is configured in a different pattern. Quick reflexes and a touch of strategy make this a game you must own.

"The most fun I've had with a mouse."—Roger Goode ►

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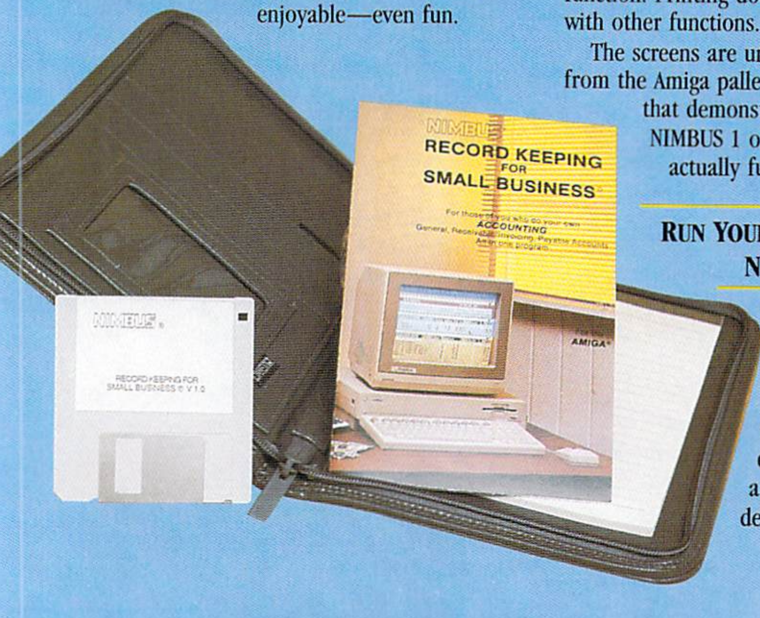
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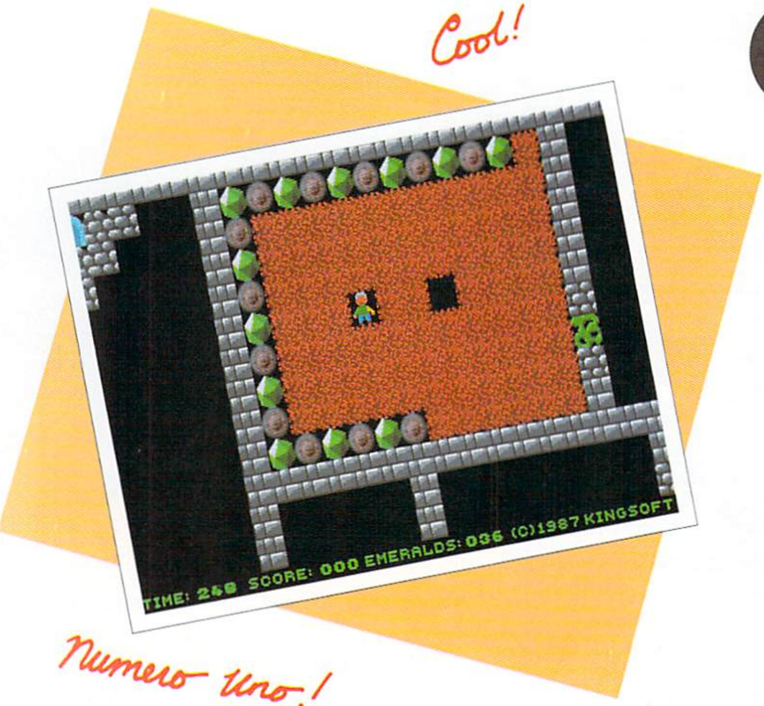
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1 Emerald Mine

Best Arcade Game
Best Game

Constellation Software
$19.95

Emerald Mine is the first Amiga game that will go down in history as an arcade classic. It is not a simple shoot-'em-up, reflex-style arcade game; instead, it is a series of complex but clever tasks that involve both speed and strategy from the players. The basic idea is to mine each level of its emeralds and diamonds, avoiding rocks, bombs, bugs, slime, sand, robots and traps. With over 100 levels, it is fun for people of all ages. Highly addicting!

"After 562 plays and 25 levels, I still can't get enough."—Bob Ryan

"Can someone tell me how to get past level 17?"—A voice in the crowd at the Amiga Developers Conference.

"Out of time! Stupid game. I'll just play a few more hours."—Guy Wright

"Put a noisy bar around this game and a beer in my hand, and I'll be in heaven."—Roger Goode ■

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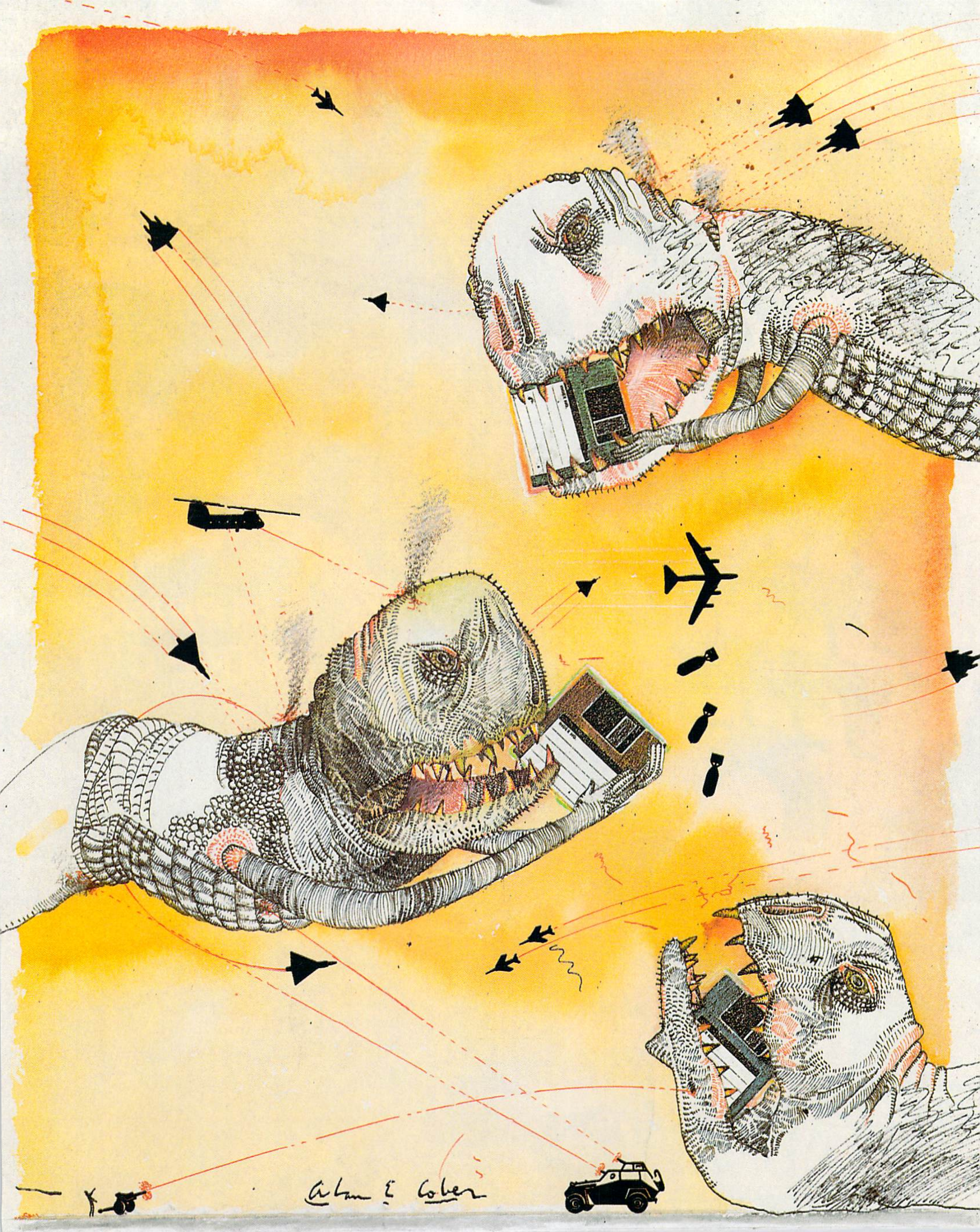
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VANQUISHING THE VIRUSES

While we may not have all the resources of Atlanta's Center for Disease Control, *AmigaWorld* has collected some proven cures and sound preventive techniques to help you stop the dread Amiga viruses in their tracks.

By Louis R. Wallace

YOUR SON COMES home from school with the flu. "It's going around my class," he says. At breakfast, his little sister snitches a drink of his orange juice. Soon she is sneezing and wheezing. You tuck her in bed with her tissues and get a big thank-you kiss. You kiss your spouse and climb in bed. A few days later, the only one in the house who does not have a fever and a stuffed-up head is your Amiga.

Far from immune, your Amiga is just as vulnerable to computer viruses, hidden programs that replicate themselves on to disks and damage or destroy data. Just as your son's playmates innocently shared their lunches and colds, members of your users' group could be unwittingly infecting your system by sharing public-domain disks. While there are only partial cures for the various virus strains, by learning their symptoms you can protect yourself and stop the spread.

MEDICAL HISTORY

Not only the Amiga has fallen ill with viruses. Every major computer has been subject to programs that remain hidden until some event triggers them. Programmers almost always leave some sort of calling card in their programs. Even the developers of the Amiga operating system added messages that appear in the Workbench menu bar only when you press a certain set of keys. The difference between these message programs and viruses, however, is like the difference between a cup of coffee and a cup of coffee with arsenic. In addition to leaving messages, viruses can destroy data, reformat drives, and replicate themselves to multiple disks.

The IBM PC has fallen prey to more software evils than you can count. Besides viruses, IBMs are beset with worms (which slowly destroy data on a disk or in memory), tapeworms (which get bigger and bigger, clogging RAM and disk space), and trojan horses (which appear to be helpful programs but actually are destructive).

Since late 1987, the Amiga has been plagued by five major viruses—SCA, Byte Bandit, Revenge, Byte Warrior, and North Star—and multiple mutants. The most common methods of passing the infection are by swapping disks at users' group meetings and buying public-domain disks.

FLU ON A FLOPPY: SCA

Created by software pirates, the Swiss Cracking Association (SCA), the SCA virus resides on the boot blocks (sectors 0 and 1) of Workbench disks. These sectors house code used to initialize various AmigaDOS routines and have enough room left over for small routines, such as copy-protection schemes and viruses. When you boot a disk, the operating system copies the contents of the boot block into memory.

Once loaded into memory, the SCA virus protects itself from being overwritten by normal Amiga actions, not too difficult on a multitasking system. It lurks in the background, not as an active task but as a dormant malignancy waiting until you insert a new disk and reboot (press CTRL-LEFT-AMIGA-RIGHT-AMIGA). During the warm boot, it protects itself from being removed from memory by the startup activity and rewrites the Workbench disk's boot block, replacing the contents with a version that includes the virus boot code. If the disk is write-protected, the virus cannot install itself, and the disk is unharmed.

Rewriting the boot block is the most dangerous ►

aspect of the SCA virus. Because the copy-protection routines of commercial disks often occupy the boot block, any alteration of sectors 0 and 1 can corrupt a disk so you cannot load its software.

Each time the SCA virus successfully procreates, it increments its internal counter. When it spawns a predetermined number of replicas (the exact number varies from one mutant strain to another), the virus displays a message such as "Your Amiga is alive, and it has spread the news to a lot of your other disks!"

You do not have to wait until the virus announces its presence to find out if a disk is infected. Several public-domain programs detect viruses. Descriptions of the various programs follow. To quickly check for the SCA virus, hold down the left mouse button while you reboot. If the screen turns green, the boot disk is infected.

Curing the SCA virus is simple once you know which disks carry it. Rewrite the infected disks' boot blocks with the AmigaDOS INSTALL command. Start with the power off and boot your Amiga (a cold boot) with a write-protected Workbench disk that you know is clean (uninfected). Open a CLI window, insert the infected disk into df1: and type:

INSTALL df1:

To install disks on a single-drive system, type INSTALL ? while the Workbench disk is in the drive. Replace it with the infected disk, type DF0:, then press RETURN.

Repeat the process for all your infected disks, except commercial disks. Running INSTALL on commercial disks with custom boot blocks is as dangerous as picking up a virus. By installing (rewriting) the boot block, you not only write over the virus, but over the necessary custom information as well.

The Byte Bandit virus will even write to non-bootable disks.

Extremely Contagious: Byte Bandit

Nastier than its SCA predecessor, the Byte Bandit virus most likely comes from Canada. Like the SCA virus, the Byte Bandit virus infects a disk's boot block and loads into memory when you boot with an infected disk. The Byte Bandit does not passively wait for you to warm boot before spreading. Instead, when a drive's trackdisk device detects that you have inserted a disk, the Byte Bandit writes its corrupted boot block to the new disk. The virus will even write to non-bootable disks and destroy all data stored in sectors 0 and 1. Infected data disks also can spread the virus if you try to boot from them. The INSTALL vaccine is useless while your computer is infected; the virus will reinfect a disk as soon as AmigaDOS finishes installing it. To immunize your disks, write protect them.

After infecting a set number of disks, the virus crashes your Amiga. No guru message appears, and the machine freezes with a blank screen until you reboot or turn the computer off and on. The crashes happen on schedule, about every six minutes, although mutants could have a different interval. You do not have to lose your work when the machine crashes. You can escape from a lockup without rebooting your system. (See "The Creator Is the Killer," p. 10 of the September '88 issue of *AmigaWorld*.) If you press in order:

LEFT-ALT, LEFT-AMIGA, SPACEBAR, RIGHT-AMIGA, RIGHT-ALT

the computer will unlock long enough for you to save your work before rebooting. Be warned: Because no disks at *AmigaWorld* have been infected by the Byte Bandit virus, I have not tested this procedure. The five-key sequence might not work, or it might do more damage, but if it is your only hope of saving a day's work, it is worth a try.

Unlike the SCA virus with its screen color trick, the Byte Bandit's only obvious sign is the computer's rhythmic crashes. If you are experiencing frequent or suspicious failures, get a virus-checking program to confirm the diagnosis. To erradicate infection, cold boot with a disk you know is clean. Run INSTALL on all infected disks that do not have a custom boot block.

More Headaches

Although not the most dangerous, the Revenge virus is the crudest of the group. Similar to the Byte Bandit virus, this infection's most obvious symptom is that it turns your mouse pointer into a phallus. You can destroy the virus in memory by plugging a joystick in port two, and pressing the fire button while rebooting. As confirmation, the screen will turn red. Cure the infected disks with INSTALL.

The Byte Warrior virus is similar to the Byte Bandit strain, but has an additional interesting feature. If the virus is in memory and you attempt to boot with an SCA-infected disk, the Byte Warrior will flash the power light and beep.

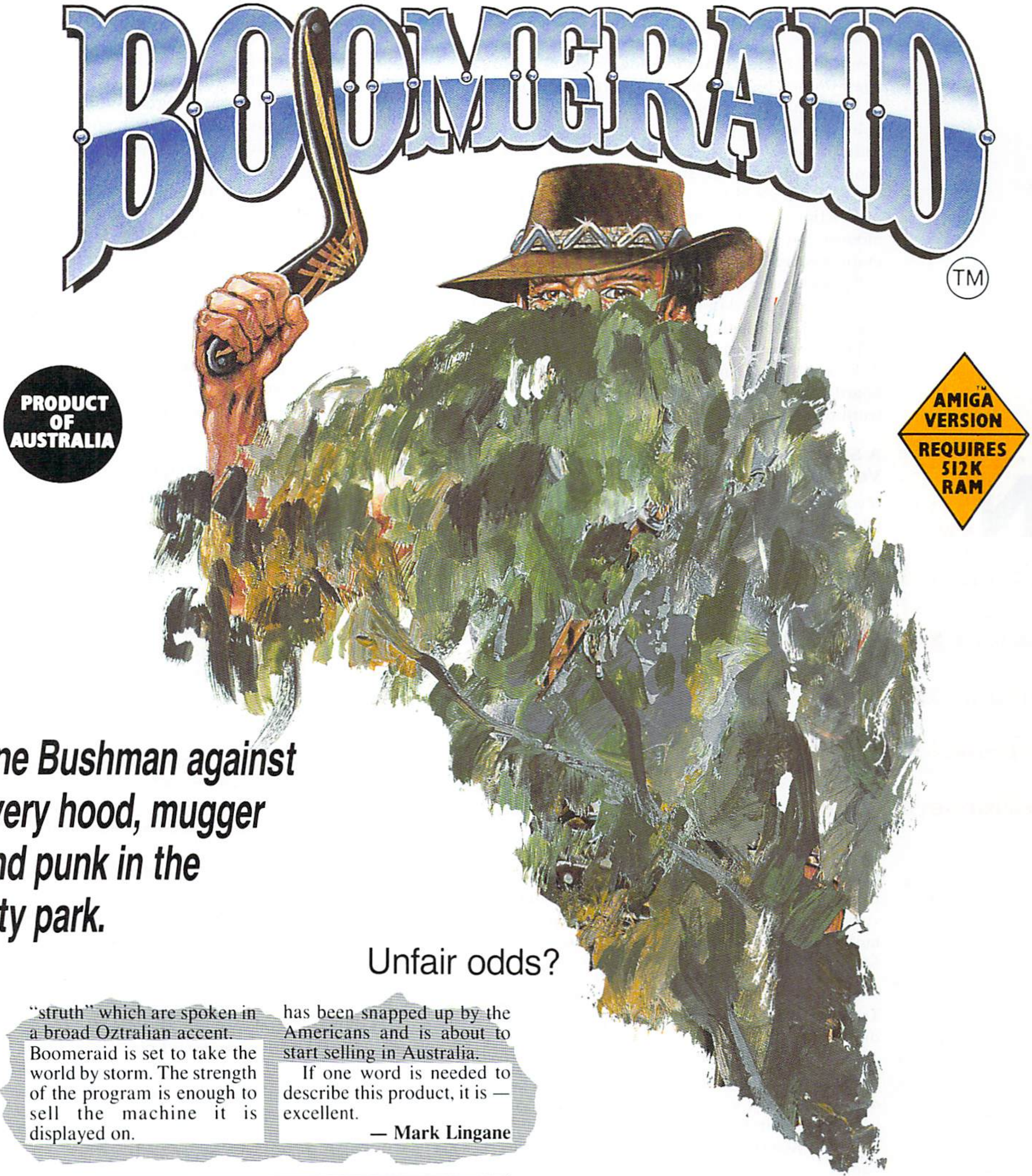
Like the SCA virus, the North Star virus infects only boot disks. Like the Byte Warrior virus, it can detect the presence of other viruses in boot blocks. A polite virus, North Star will even display an Alert message telling you that the disk is infected.

The North Star and Byte Warrior viruses are attempts to fight fire with fire. They will warn you of the presence of a virus, but they themselves are infectious and can be damaging.

None of these viruses are capable of self mutation or random alterations. Mutant strains are the result of programmers altering the original virus code, usually the text message the virus displays. Variations on the SCA virus include the LSD and AEK viruses; there are undoubtedly others.

Harbingers of Doom

Like fanatics toting signs proclaiming "The end of the world is upon us!", members of the Amiga community are spreading unfounded rumors about new, deadlier viruses. One such tale of terror is about a Clock virus that supposedly resides in some free RAM in the Amiga 2000's built-in clock. The clock has no ►



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— Mark Lingane

SUNDAY TIMES, MAY 15, 1988

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free RAM. At best, an offending program could set a few unused bits (not bytes). The right combination of bits could cause the clock to stop. With the 1.2 operating system, you cannot correctly reset the bits without removing the clock's battery. Under the proper circumstances, some software that depends on the clock could experience problems. To prevent this fictional virus from becoming a reality, Commodore has set those bits in version 1.3 of the operating system.

Rumormongers have also mentioned a virus that infects Amiga hard-disk drives. I could not find anyone who had encountered such a virus.

The most exotic rumor describes a virus that attacks disks on both the Amiga and IBM sides of the Bridgeboard system. While an imaginative story, there is no truth to it.

A Shot in the Disk Drive: Virus Vaccination

If you have been spared from exposure so far, you can take some precautions to stay immune. Always boot from a clean Workbench disk. To be sure your boot disk is clean, write protect your original Workbench disk. Cold boot from your clean, write-protected Workbench original. Copy the clean disk and write protect the new Workbench disk. From now on, only boot from the clean, write-protected disk. Never warm boot, if you can avoid it. Turn off your computer, wait, and turn it on before changing applications.

New virus mutations and infections are almost inevitable.

You can easily find virus-protection programs on bulletin boards, on-line networks (GENIE, BIX, COMPUSERVE, and so on), public-domain disks, and in disk-based magazines. JumpDisk (1493 Mt. View Ave., Chico, CA 95926, 916/343-7658) has been a leader in supplying quality virus-detection programs. The programs listed below are from reputable authors and are freely distributable. Be careful, the Amiga is not free from trojan horses. One of the first virus-detection programs (from Europe) places a mutant on the disk it is checking. *Only use software you have gotten from reputable sources.*

•**VCHECK1.9** (Bill Koester, Commodore Amiga Technical Support): detects both SCA and Byte Bandit strains

•**VIRUSX 1.6** (Steve Tibbett, Gloucester, Ontario): runs in the background and checks for viruses as each disk in inserted; very likely the single best weapon in your anti-viral arsenal

•**VIEWBOOT** (Brian Meadows, Huntsville, Alabama): allows you to examine a disk's boot sector for messages; can be used to examine the Amiga's RAM

•**INSTALL** (Commodore Amiga Technical Support): 1.3 version of the INSTALL command, with the syntax INSTALL CHECK, reports if it finds a non-standard boot block

Discovery Software International (163 Conduit St., Annapolis, MD 21401, 800/342-6442) offers **VIP-Virus Infection Protection** ($49.95). Anticipating the development of unknown virus strains, VIP lets you store the boot blocks of your programs in a special database. You insert a new program disk into a drive, VIP reads the boot block, stores away a copy, and gives you a report. If your disk is later infected and will not run, VIP will restore the boot block to its original state. VIP does not promise to solve every problem, but it could rescue your custom boot blocks from premature demise.

Where viruses are concerned, always assume a disk is infected until proven clean. Check all new disks with a virus-detection program. Never boot with an unknown disk. If you must boot with a disk before checking it, do not put any write-enabled disks in the drives. Most importantly, *make backups of your software.* If you are struck down, you can recover the damaged data.

Recuperating: Legally Entitled

While the virus creators are not doing anything strictly illegal, many victims feel they should be held responsible for damages. The Software Development Council of North America (SDC, with over 1000 software companies as members) has declared war on virus makers. It is developing programming techniques to ward off the dangers of virus programs, as well as drafting anti-virus legislation. SDC lawyers in Pala Alto, Minneapolis, and Chicago are working to legally define a computer virus and to convince states to adopt penalties for virus creation and distribution.

While software companies are beginning the legal battles, several companies have inadvertently sent out Amiga programs that were infected. Obviously, the manufacturers did not intend to do so, and fell victim to the common enemy. All software companies must take strong measures to ensure the quality and integrity of their products. Quality-assurance programs are standard in other industries; the software market should be no exception.

Long Term Care

As with the ever changing flu strains, new virus mutations and infections are almost inevitable. Take the appropriate precautions and your computer should stay healthy. The task we face as users is to protect ourselves as much as possible. If you contract a new virus, let us know at *AmigaWorld*. We will spread the word on the symptoms and how to protect your computer. ■

Louis R. Wallace is a contributing editor to AmigaWorld. *Write to him c/o* AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.* *The author would like to thank Chris Halsall (LateNite Development Corporation), Carolyn Scheppner (CATS), Joanne Dow (BIX), Jack Eakins (Discovery Software), Brian Meadows (author of ViewBoot), and Steve Tibbit (author of VirusX) for their invaluable assistance in preparing this article.*



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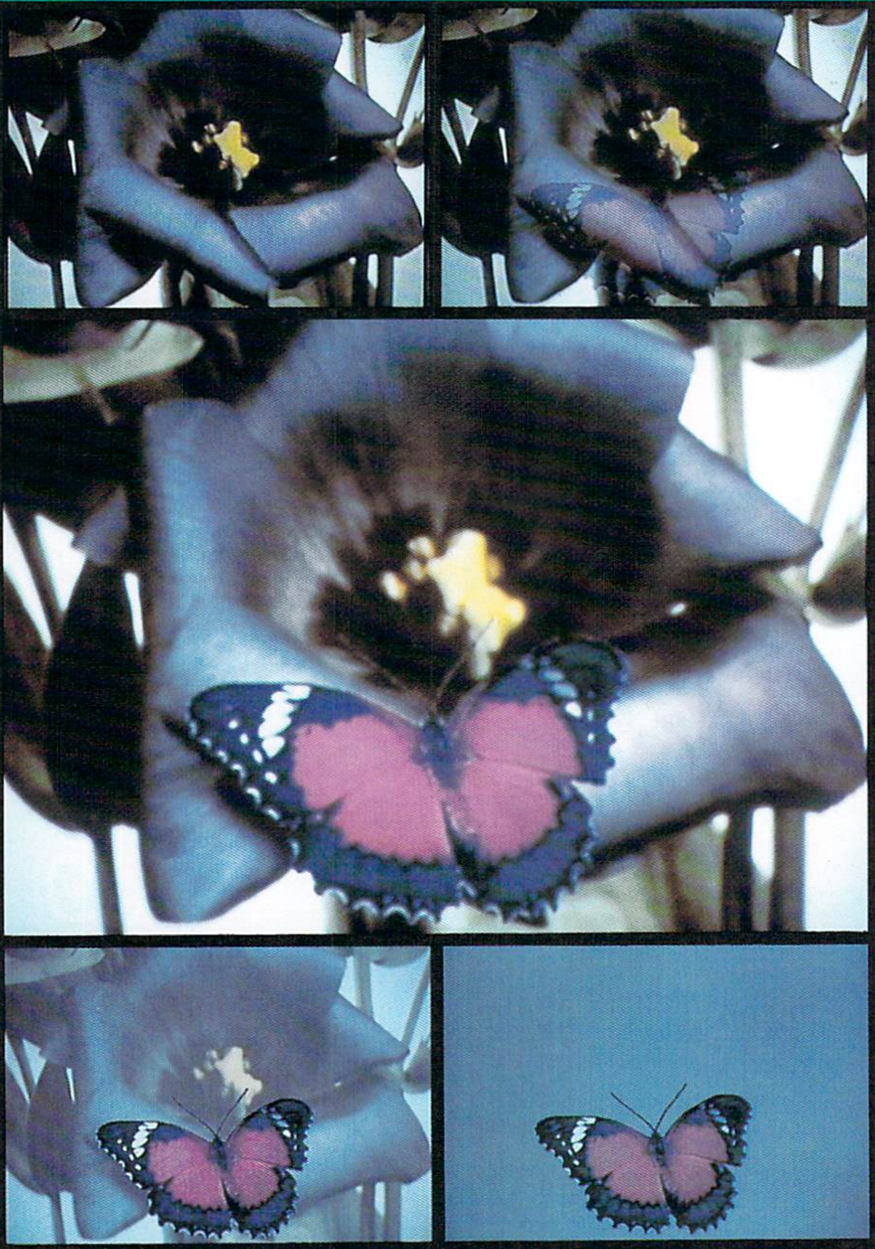
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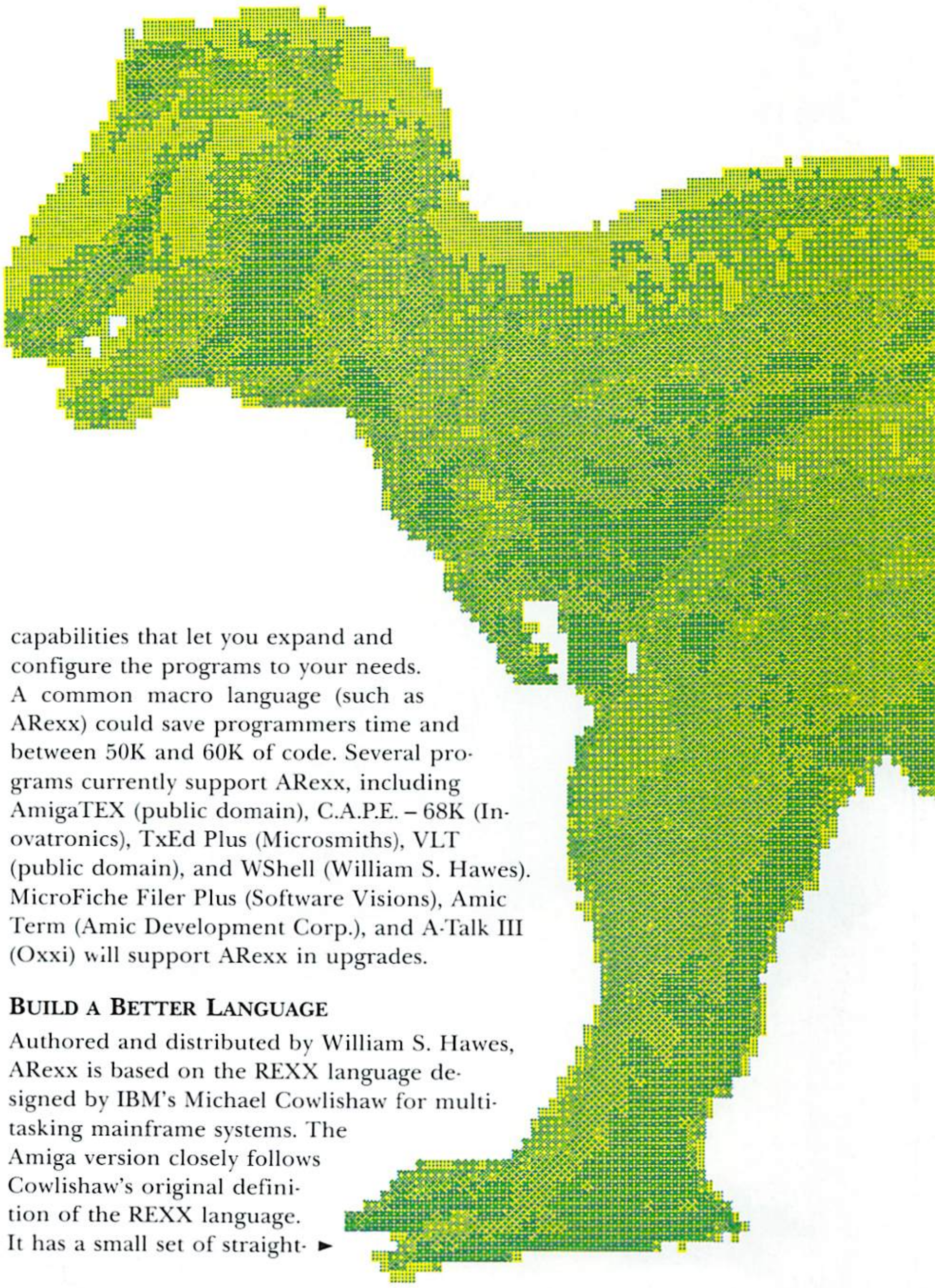
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ARexx: New Kingpin of Multitasking?

Just as mighty T.rex came to rule his Cretaceous habitat, ARexx, a new high-level macro language, is rapidly evolving as a dominant force in the Amiga's multitasking environment.

By W. Jeffrey Blume



RUNNING SEVERAL INDEPENDENT programs at the same time means multitasking, right? But what about running those programs simultaneously *and* combining selected components from each to form one completely new and distinct application? That's multitasking with ARexx.

With ARexx, a high-level, interpreted language for macro programs, you can customize applications to form integrated systems incorporating the most useful features of several different programs. Taking compatible modular software and using ARexx as the "glue," you could assemble your ideal desktop-publishing system, for example, by combining the page formatter from one program, the graphics editor from another and the text editor from a third. What sets ARexx apart from other macro interpreters, such as the AmigaDOS EXECUTE command, is its ability to interface with appropriately written ARexx host programs, expanding their capabilities and making diverse applications appear as one integrated system.

Many software packages include built-in macro capabilities that let you expand and configure the programs to your needs. A common macro language (such as ARexx) could save programmers time and between 50K and 60K of code. Several programs currently support ARexx, including AmigaTEX (public domain), C.A.P.E. – 68K (Inovatronics), TxEd Plus (Microsmiths), VLT (public domain), and WShell (William S. Hawes). MicroFiche Filer Plus (Software Visions), Amic Term (Amic Development Corp.), and A-Talk III (Oxxi) will support ARexx in upgrades.

Build a Better Language

Authored and distributed by William S. Hawes, ARexx is based on the REXX language designed by IBM's Michael Cowlishaw for multitasking mainframe systems. The Amiga version closely follows Cowlishaw's original definition of the REXX language. It has a small set of straight- ►

forward instructions, IF. . .THEN. . .ELSE, DO. . . FOR. . .WHILE. . .UNTIL, and so on. Data is typeless in ARexx. You do not need to declare variables prior to using them; they are evaluated according to their contexts. The language also includes a built-in set of functions for string manipulation.

While ARexx directly supports only basic arithmetic operators, you can write custom function libraries to extend the language. The manual and on-disk source examples guide you through the procedure. If you want a ready-built library, rexxmathlib.library is available in the public domain. The latest version of ARexx (1.06) includes this library, a 68881 library, a library to access the ARP (AmigaDOS Replacement Project, see "The AmigaDOS Workout Disk," p. 40, in the August '88 issue of *AmigaWorld*) file requester, and a library of Amiga-specific functions.

ARexx uses stem and compound symbols to build conventional arrays, or linked lists similar to those in C. A stem symbol is denoted by a single trailing period on the symbol name; a compound symbol has one or more periods imbedded in the name. You can initialize each node (delimited by periods) in a compound symbol individually, or, by initializing the stem symbol, you can initialize all nodes derived from the stem simultaneously. Both structures can be indexed by the individual nodes.

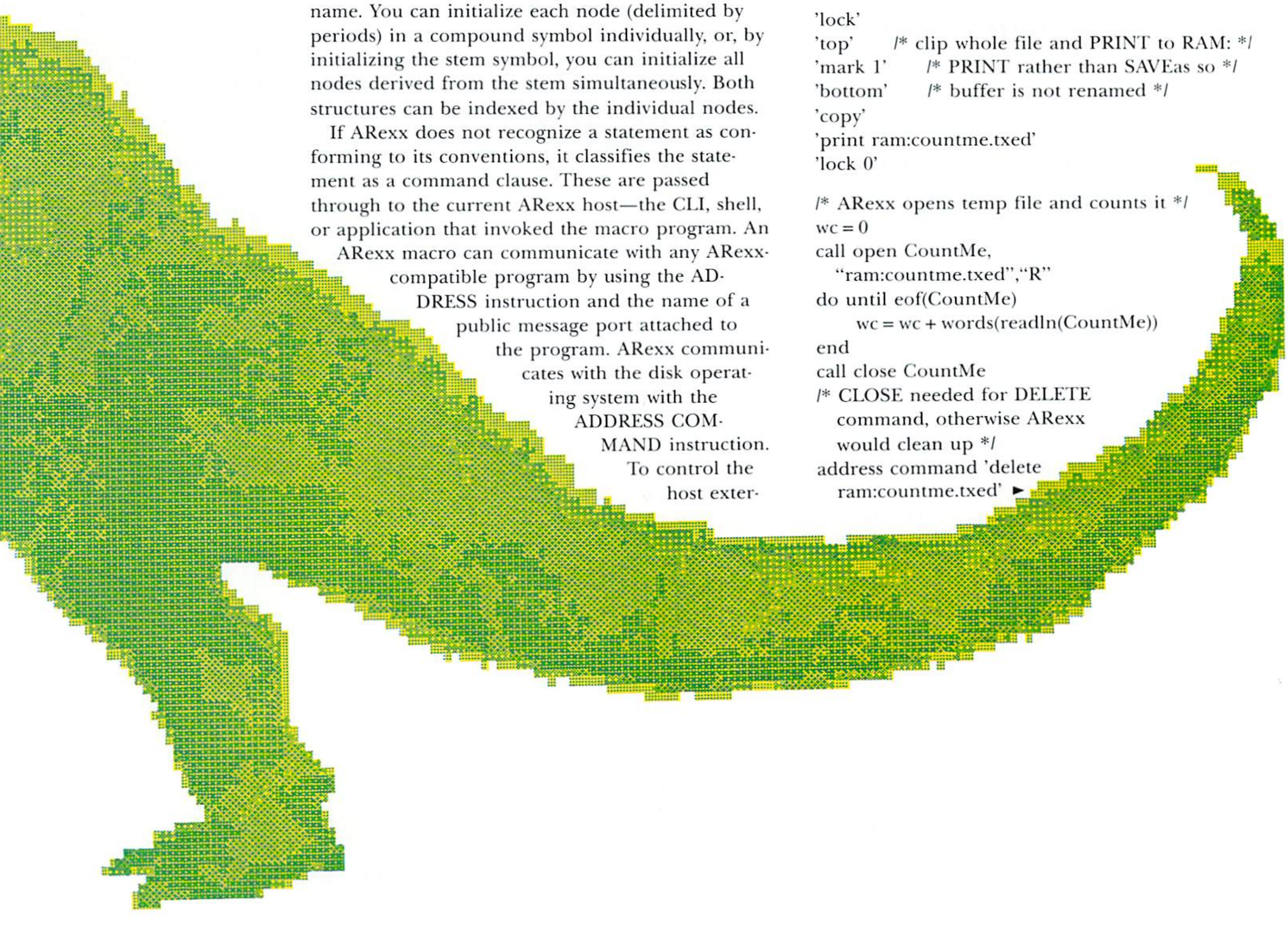
If ARexx does not recognize a statement as conforming to its conventions, it classifies the statement as a command clause. These are passed through to the current ARexx host—the CLI, shell, or application that invoked the macro program. An ARexx macro can communicate with any ARexx-compatible program by using the ADDRESS instruction and the name of a public message port attached to the program. ARexx communicates with the disk operating system with the ADDRESS COMMAND instruction. To control the host externally, you can include host-specific commands in the command clause. For example, you can access all of the menu commands of TxEd Plus (a text-editor) and C.A.P.E. – 68K (an integrated editor/assembler) by external ARexx macros. Closer to home, you can access all the AmigaDOS (or ARP) commands.

The ARexx macro below first uses TxEd (the current host) commands to save the editor's buffer to a temporary file in RAM:. ARexx counts the number of words in the file, tells ARP to delete it, and opens a console window to report the result. Upon exiting, ARexx's built-in resource management closes the console and frees any resources the macro program did not release.

```
/* WordCount.txed (All ARexx programs begin
   with a comment line.) */
/* An elaboration of Hawes word counter exam-
   ple from WShell docs */

/* Single quotes identify the statements as host
   command clauses */
'lock'
'top'      /* clip whole file and PRINT to RAM: */
'mark 1'      /* PRINT rather than SAVEas so */
'bottom'      /* buffer is not renamed */
'copy'
'print ram:countme.txed'
'lock 0'

/* ARexx opens temp file and counts it */
wc = 0
call open CountMe,
   "ram:countme.txed","R"
do until eof(CountMe)
     wc = wc + words(readln(CountMe))
end
call close CountMe
/* CLOSE needed for DELETE
   command, otherwise ARexx
   would clean up */
address command 'delete
   ram:countme.txed' ►
```




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```
/* Open ConMan console and report result */
call open io,"con:175/80/275/70/WordCount/C",A
/* C for Close gadget */
call writeln io,""       /* blank line */
call writeln io,"WORDCOUNT = " || wc
call writeln io,""       /* blank line, */
call writeln io,"(Press return to close window!)"
call readln io       /* wait for return */
/* ARexx will close the console and otherwise
   clean up */
```

By adding the commands:

```
'MAC W WordCount'       /* A MACro ctrl-key */
'MENU 5 "WordCount Ctrl-W" "WordCount"'
/* A custom menu item */
```

to a special configuration file, Startup.txed (itself an ARexx program), you can call WordCount from a custom menu item or control key.

Because the ARexx language is implemented as a shared library, rexxsyslib.library, you can run several ARexx programs simultaneously, using a minimum of RAM. You will need less than 40K to install the resident processes; additional ARexx programs need only about 6K apiece. Type REXXMAST to load the interpreter; to run a program from the CLI, type RX plus the name of a macro program and its arguments.

ENGRAVED INVITATIONS

Implementing ARexx support in an application can require as few as 40 lines of code. The essentials of the command interface are a public message port and a routine to handle messages from ARexx. The Amiga's operating system supplies the basic tools—23mEXEC message ports and EXEC messages. For most applications, you will need only two special structures, RexxMsg and RexxArg. RexxMsg is an extension of the standard EXEC message; RexxArg is a structure for passing string arguments to external programs and is passed as a pointer to the string buffer (argstring). (See Table 1.)

The rexxsyslib.library offers various functions for handling these structures. The ARexx distribution disk contains Include, Header, and Definition files to access RexxMsg and RexxArg from assembly, C, and Benchmark Modula-2. If you need help, the disk includes short examples of how to create ARexx hosts in these languages.

To pass command messages between ARexx and a host application, the host needs a public message port. Because most programs have several ports for input and output, system messages, and so on, you will have to write little additional code. You must, however, initialize all RexxMsg structures, but us- ►

Table 1. ARexx Structures

```
struct RexxMsg {
    struct Message rm_Node;                     /* EXEC message structure */
    APTR        rm_TaskBlock;                   /* pointer to global structure */
    APTR        rm_LibBase;                     /* ARexx library base */
    LONG        rm_Action;                      /* command (action) code */
    LONG        rm_Result1;                     /* primary result (return code) */
    LONG        rm_Result2;                     /* secondary result */
    STRPTR      rm_Args[16];                    /* argument block (ARG0-ARG15) */

    struct MsgPort *rm_PassPort;                /* forwarding port */
    STRPTR      rm_CommAddr;                    /* host address (port name) */
    STRPTR      rm_FileExt;                     /* file extension */
    LONG        rm_Stdin;                       /* input stream (filehandle) */
    LONG        rm_Stdout;                      /* output stream (filehandle) */
    LONG        rm_avail;                       /* future expansion */
    };                                          /* size: 128 bytes */

struct RexxArg {
    LONG        ra_Size;                        /* total allocated length */
    UWORD       ra_Length;                      /* length of string */
    UBYTE       ra_Flags;                       /* attribute flags */
    UBYTE       ra_Hash;                        /* hash code */
    BYTE        ra_Buff[8];                     /* buffer area */
    };                                          /* size: 16 bytes (minimum) */
```



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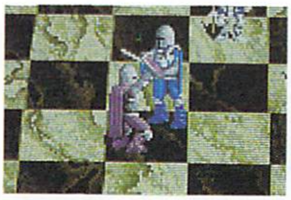
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ing the CreateRexxMsg( ) function in the rexxsyslib.library accomplishes this easily. For example:

```
rexxmsgptr = CreateRexxMsg(replyport,
   extension,host)
```

Host points to a message port from which the message is sent. A required argument, replyport, points to the port to which the message packet is returned to the sender.

Extension is a default file name suffix ARexx adds automatically to a file name passed in the command string, allowing you to identify which application a macro belongs to. When run from the CLI, ARexx macros, for example, will find programs with the extension .rexx, without requiring you to enter .rexx on the command line. Similarly, VLT looks automatically for macros with the extension .VLT.

For straight communications, you should set the rm_Action field to RXCOMM, but several other command codes are available. The additional codes let you specify the message as a function invocation, an entry to the internal Library List, or a request to open the global tracing console. A command code can even include modifier flags for parsing the command string, requesting results from function invocations, and so on.

When a host application receives a command from ARexx, it uses the rm_Result1 field to report the success of the operation requested, or, if it failed, the severity of the error (the return code). ARexx then assigns the value of rm_Result1 to a special variable, RC. ARexx macro programs test RC and react appropriately. Use the rm_Result2 field to return the result of function invocations.

The ARG0 field contains the actual command in the form of a RexxArg structure. You can initialize this structure with the CreateArgstring( ) function from the rexxsyslib.library. The allocation and assignment take the following form:

```
rexxmsgptr->rm_Args[0] = CreateArgstring
   (string,length)
```

Depending on the direction of communication, string can be a macro (and its arguments) you wish to execute or a command for a host application. Length is the length of the string [strlen(string)]. The function returns a pointer to the buffer in which the string is stored.

Once you initialize the RexxMsg you can send it to any ARexx host, including the ARexx resident process, through the public message port, REXX. Other typical names for host ports include CAPE for C.A.P.E. – 68K, TxEd Plus 1/c for TxEd Plus, and WSH_1 for WShell. You can find a pointer to a port with the EXEC function FindPort( ). To get a pointer to REXX type:

```
rexxport = FindPort(RXSDIR)
/* RXSDIR is defined in the file rxslib.h as
   REXX */
```

To send the message, use the EXEC function PutMsg( ):

```
PutMsg(rexxport,rexxmsgptr)
```

►

Product Information

ARexx
William S. Hawes
P.O. Box 308
Maynard, MA 01754
617/568-8695
$49.95

ARexx Compatible Programs:

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Radical Eye Software
P.O. Box 2081
Stanford, CA 94305
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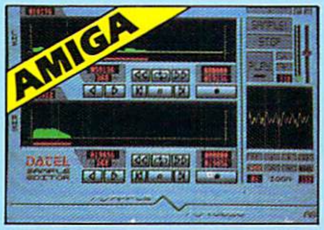
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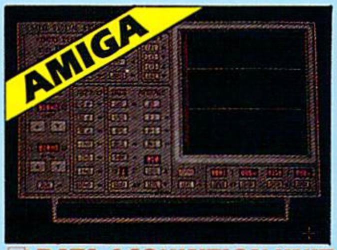
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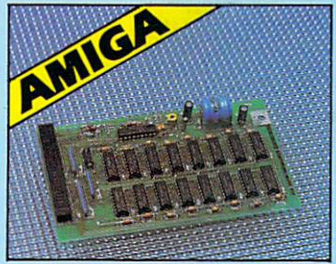
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Be sure to enclose the calls to FindPort( ) and PutMsg( ) with calls to the EXEC functions Forbid( ) and Permit( ), so that the destination port does not close between the time FindPort( ) returns the pointer and PutMsg( ) sends the message.

Unwelcome Guests

If you have problems programming in ARexx, you will appreciate its single-stepped, source-level debugger and the command utilities that let you control the debugger's output and regain control of programs that have run amok. You can place the TRACE instruction in the source code to activate various debugging levels. To force active ARexx programs into the interactive trace mode, use the TS command. The HI command halts all active ARexx programs. The TCO command will open a standard console window and redirect the debugger's output to that window. In interactive mode, ARexx programs pause after executing each statement, letting you enter ARexx clauses on the fly.

ARexx also provides interrupt facilities to trap program errors, and external breaks, such as CTRL-C. You can use the SIGNAL command and its arguments to specify which errors to trap, as well as the labels of error handlers to which control may be passed.

The best way to understand ARexx is to see it in action. Fancydemo.c (see Listing 1) is a simple rexx host that can send and receive messages from ARexx; testdemo.rexx, an ARexx program, accompanies it (see Listing 2). For additional illustrations, see RexxTools, a set of examples for interfacing to ARexx, in the public domain.

While it needs to gain wider acceptance, ARexx and modular software offer numerous benefits for users. For developers, ARexx provides a method of adding a maximum amount of expansibility, with a minimum of development effort. ■

W. Jeffery Blume is a freelance photographer, writer, graphics designer, and fire fighter. Write to him at PO Box 1671, Fort Collins, CO 80522.

Listing 1. fancydemo.c

```
/*****************************************************
   fancydemo.c - A fancy rexx host that can send and
   receive messages.
   Author - Gary Samad & Bill Hawes
   Revisions:
      7-Mar-88   Original version.
     16-Mar-88   Added result string return (WSH)
   This is truly Public Domain!!
***************************************************/
#include "storage.h"
#include "rxslib.h"
#include <exec/ports.h>
#include <libraries/dos.h>
#include <libraries/dosextens.h>
#define YES      1
#define NO       0
#define OK       0
#define NOTOK      1
#define EOS       '\0'
#define NO_REXX_MSG   "Rexx is not active. Please run
'rexxmast' from another CLI.\n"
#define STARTUP_MSG   "Type commands to rexx.  Type
EOF (^\\) to end.\n"
#define CLOSING_MSG   "Ok, we're closing (after all
rexx messages have returned).\n"
#define WINDOW_SPEC   "CON:0/10/600/60/Fancy Demo
Input Window/c"
#define HOST_PORT_NAME   "FancyDemo"
#define REXX_EXTENSION   "rexx"
#define BUFFLEN      100
/* THIS NAME MUST BE RexxSysBase
                               FOR THE GLUE ROUTINES */
struct RxsLib *RexxSysBase = NULL;
                  /* this is the rexx library base */
int outstanding_rexx_commands = 0;
BPTR window_file_handle = NULL;
struct MsgPort *dos_reply_port = NULL;
struct StandardPacket *dos_message = NULL;
struct MsgPort *rexx_port = NULL;
main()
{
   struct Message *GetMsg();
   BPTR open_window();
   struct MsgPort *setup_dos_reply_port();
   struct MsgPort *setup_rexx_port();
   struct StandardPacket *setup_dos_message();
   void send_read_packet();
   int send_rexx_command();
   void execute_command();
   void reply_rexx_command();
   void free_rexx_command();

   int packet_out = NO;
                   /* whether a READ is outstanding */

char buff[BUFFLEN+1];
                /* used for reading user input */
struct RexxMsg *rexxmessage;
                    /* incoming rexx messages */
int close_down = NO;
                /* set when the user hits EOF */
/* open a window to talk to the user through */
if ((window_file_handle = open_window()) == NULL)
{
  printf("sorry, couldn't open a CON: window\n");
  close_up_shop(10);
}
/* set up a port for dos replys */
if ((dos_reply_port = setup_dos_reply_port()) ==
                                              NULL)
{
  printf("sorry, can't set up dos_reply_port\n");
  close_up_shop(10);
}
/* set up a public port for rexx to talk to us */
if ((rexx_port = setup_rexx_port()) == NULL)
{
  printf("can't set up a public rexx port\n");
  close_up_shop(10);
}
/* set up a dos packet for the asynchronous read
                              from the window */
if ((dos_message = setup_dos_message()) == NULL)
{
  printf("sorry, no memory for dos packet\n");
  close_up_shop(10);
}
Write(window_file_handle,STARTUP_MSG,
                     (long)sizeof(STARTUP_MSG));

/* loop until quit and no messages outstanding */
```

Listing continued on p. 112

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Covers AmigaDOS Release 1.3!

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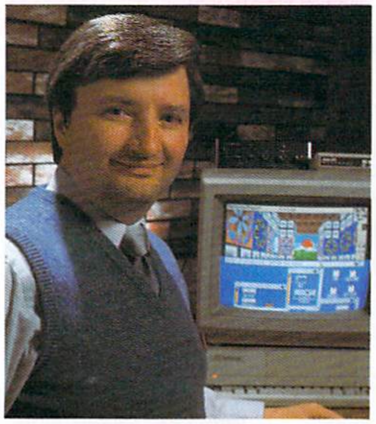
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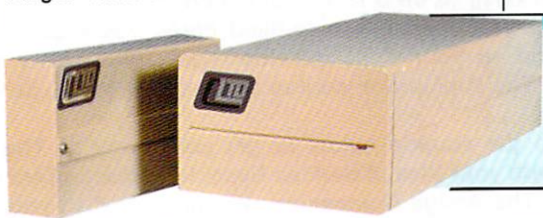
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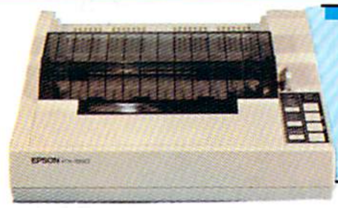
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Exploring AmigaDOS 1.3* Part IV

Our columnists show their expertise in a very new version of a very old game—the "Shell Game" to be precise—as they continue their foray into AmigaDOS 1.3's new commands. No, there aren't any peas under thimbles here, but you will still learn a few tricks once you master 1.3's new Shell.

By Mark L. Van Name and Bill Catchings

**Editor's Note: To get the information on version 1.3 to you as quickly as possible, the authors have had to use a "gamma" version of AmigaDOS 1.3. A gamma version is one that Commodore circulates to developers and a few other groups so that those groups can see what's coming and help shake out any bugs. It is the last unofficial release before the software hits your dealer's shelves. Most likely, the final version will have the same new CLI commands as this gamma version, but Commodore still could make some changes before it releases the final version. To be safe, when you buy a copy of version 1.3, plan to spend a few minutes verifying that everything works as it is described here.*

IN OUR LAST column we mentioned an AmigaDOS 1.3 addition, the Shell, that frequent CLI users will love. This time we examine the Shell in detail.

Shell Basics

Think of the Shell as a souped-up CLI. It lets you enter and execute commands the same way the CLI does, but it offers several new features that make it a lot nicer to use than the CLI. The CLI is still there, of course—in the SYSTEM drawer on the Workbench disk—but after you use the Shell for a while, we're confident that you won't want to go back.

To run the Shell, open your Workbench 1.3 disk and double-click on the Shell icon. It resembles the CLI icon, but the word "Shell" is underneath it. A CLI-type window will appear, but it will have a new title, "AmigaShell." The Shell also starts differently than the CLI. In AmigaDOS 1.3, every time you start a CLI it runs the file S:CLI-Startup, while each new Shell first executes S:Shell-Startup.

The major difference between the commands in those two startup files is visible in the different prompts that the CLI and the Shell use. CLI-Startup has only one command, the traditional PROMPT command

```
PROMPT "%N> "
```

The %N characters are a PROMPT directive that makes the prompt include the CLI's number, as in the CLI's standard prompt

```
1>
```

Shell-Startup uses a new prompt directive, %S, in its first command:

```
PROMPT "%N.%S> "
```

The %S directive causes the prompt to include the name of the current directory. Thus, the Shell's standard prompt is

```
1.SYS:>
```

You do not have to use these directives ►

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in this order or together. Also, the other characters in the prompt string are optional, and you can replace them with any string you want. For example, you could change the PROMPT command in Shell-Startup to

PROMPT "Current directory is %S; Shell number is %N; enter command: "

which would give you the disgustingly long prompt

Current directory is SYS:; Shell number is 1; enter command:

Pick Your Own Names

Shell-Startup file also contains two other commands:

ALIAS XCOPY COPY [ ] CLONE
ALIAS ENDSHELL ENDCLI

The ALIAS command is another new Shell feature, allowing you to create synonyms for commands. You could, of course, simply go into the C directory on your Workbench disk and rename the command files themselves, but then anyone unfamiliar with those names might have trouble using your Amiga. ALIAS, on the other hand, does not change a command's name; it merely adds an additional one.

As these examples show, ALIAS takes two arguments. The first is the new command name, or *alias*. The second is a command string that you want to invoke with that name. The second command above uses this format to make ENDSHELL a synonym for ENDCLI. Once you have given a command an alias, you can use that alias anywhere you can use the command.

The first ALIAS command above illustrates one powerful ALIAS option: By including [ ] in the command string, you can pass arguments from the alias command line to the original command. For example, entering

XCOPY FILE1 TO FILE2

is the same as entering

COPY FILE1 TO FILE2 CLONE

The shell replaces [ ] with everything you type after the command alias.

Notice that the command string is not in quotes in either of these examples. Unlike AmigaDOS names, which you must surround by quotes if they contain spaces, you should not put quotes around this command string. For example,

ALIAS CAT TYPE

lets you see the contents of a file with the Unix-style command

CAT FILE1

If you enter instead

ALIAS CAT "TYPE"

the Shell will accept the ALIAS, but when you enter

CAT FILE1

you will get the error message

Unknown command "TYPE"

There are two other ALIAS options. You can see all of your current command aliases by entering

ALIAS

You can also remove any alias by entering it with no command string, as in

ALIAS CAT

You can also redefine any alias simply by giving it a new command string in another ALIAS command.

In our discussion of the RESIDENT command in the last column, we mentioned that all Shells share one set of RESIDENT commands. That is *not* true for aliases. Each Shell has its own set of aliases. You could have several Shells running simultaneously, each with a different set of aliases.

Painless Execution

Aliases are nice for CLI commands, but many of us have batch files that we execute as often as commands. To run a batch file from the CLI, you have to use the EXECUTE command. The Shell lets you execute directly any batch file whose script (S) bit is set. The S bit is one of 1.3's new protection bits that we mentioned in a previous column. You set a file's S bit with a PROTECT command such as

PROTECT FILE1 +S

If a file has its S bit set, the Shell lets you execute it by simply typing its name. You now can EXECUTE the batch file FILE1 by entering

FILE1

The Shell still uses the EXECUTE command to run the file—there is no special magic there—but it saves you the trouble of remembering which of your common commands are programs and which are batch files. Further, a RESIDENT command in S:Startup-Sequence makes the EXECUTE command resident, so you can quickly and painlessly execute batch files. It is a good idea, by the way, to put in the S: directory any batch files that you use frequently. A PATH command in Startup-Sequence puts that directory on your command search path, so you can execute those batch files from any directory.

Starting New Shells

Just as you run several CLIs simultaneously, you can also execute several Shells at once. You can even have a mixture of both running at the same time.

Just as NEWCLI starts a CLI process, NEWSHELL starts a new Shell. These commands give you a CLI and Shell, respectively, that use the AmigaDOS 1.3 standard CLI and Shell windows. Both NEWCLI and NEWSHELL, however, have an option that lets you control the position, size, and title of that new window, allowing you to pass instructions to the AmigaDOS *window-handler*. In AmigaDOS 1.2, there was only one window-handler, CON:. You could use it as a NEWCLI option in the following way:

NEWCLI CON:x/y/width/height/title

where x and y are the new window's starting column and row, width and height determine its size, and title is the name that will appear in its title bar. Thus, the command

NEWCLI CON:20/10/400/200/MyCLI

creates a new CLI whose window starts at pixel column 20 and row 10, whose size is 400 pixels wide by 200 pixels tall, and whose title is "MyCLI."

You do almost the same thing to control a new Shell's window, but you have to use a new command-handler, NEWCON:. Otherwise, the options are the same. Entering

NEWSHELL NEWCON:20/10/400/200/MyCLI ►

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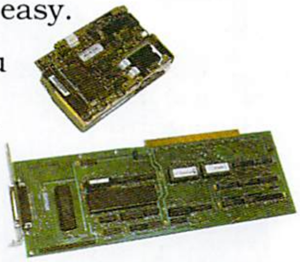


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creates a new Shell window in the same spot as the new CLI window above. Both commands always use their respective window-handlers even when you do not give the new window information, but in that case they supply default window information.

NEWSHELL assumes two conditions: that L:Shell-Seg, the code that implements the Shell, is already resident, and that the NEWCON: window-handler is already mounted. You do not need to mount the CON: handler, but the NEWCON: handler has an entry in DEVS: MountList, and you have to mount it before you can use it. Fortunately, the standard Startup-Sequence contains the following two commands that make sure those conditions are true:

```
RESIDENT CLI L:SHELL-SEG
SYSTEM PURE
MOUNT NEWCON:
```

There is one difference between the NEWCON: and CON: window-handlers that you might notice if you TYPE any files, such as word-processing documents, that contain unusual characters. Unlike CON:, NEWCON: does not display control characters. It does not remove control characters from files you display—they're still there—but it displays a space for every control character it hits.

RETRIEVING THE PAST

We know what you're thinking: Who cares about a new window-handler? It's just another programmer's goody. No way. It is actually one of the best things about the Shell, because it gives you a whole new set of command entry options.

Haven't you ever wanted to reenter a command that you know you typed only a little while back? Now you can flip quickly through your previous commands thanks to what Commodore calls a "history buffer." It is a circular buffer that holds the last 2K worth of commands that you typed.

Let's say that you started your shell and then entered the following four commands:

```
CD S:
DIR
TYPE CLI-STARTUP
TYPE SHELL-STARTUP
LIST
```

To TYPE CLI-Startup again, you could reenter that command. With the history buffer, however, you get the previous command by hitting <up arrow>. Hit it again and you go back another command, and so on until you loop through the entire 2K buffer and back to the blank command line with which you always begin. Thus, in our example, if you hit <up arrow> twice, your command line would read

```
TYPE CLI-STARTUP
```

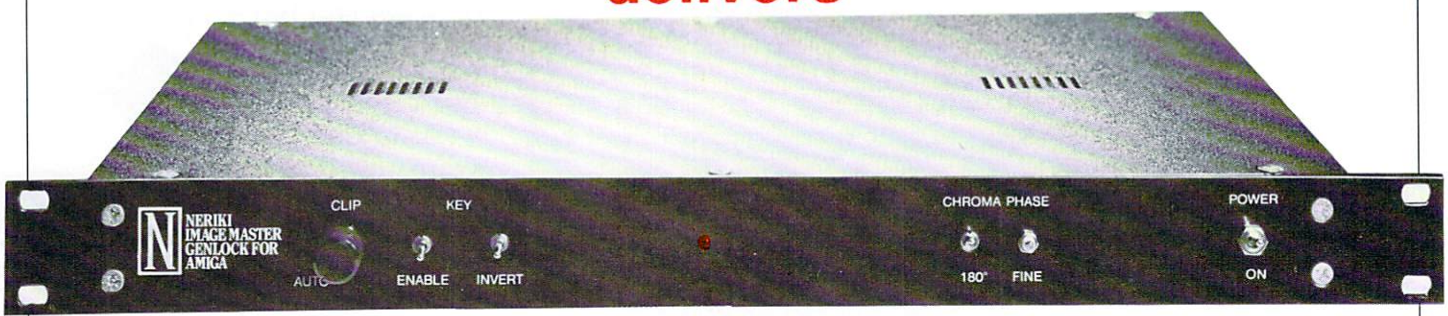
and you would have typed only two keys. Hit Return and the command executes just as if you typed it.

You can also go to the next command in the history buffer by hitting <down arrow>. So, if you accidentally press <up arrow> three times and end up with

```
DIR
```

in your command line, you can hit <down arrow> and get back to where you wanted to be. If you hit <down arrow> when you're sitting on the blank command line, and the history buffer is not full, there is no next command, so you keep the blank line. ►

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You can also search through the history buffer. If you do not remember the exact name of the CLI-Startup file, but you want to see it and know it starts with a C, you could type

TYPE C

and then hit SHIFT-<up arrow>, which causes the Shell to search backwards through the command buffer to find the first command that begins with the string you typed. If nothing matches, it leaves the command line as you typed it. In this case, however, it would bring back the entire command line

TYPE CLI-STARTUP

You can also search backward with CTRL-R instead of SHIFT-<up arrow>.

If you get deep into the history buffer and want to jump back to its bottom, the original blank command line, you can enter either SHIFT-<down arrow> or CTRL-B.

Correcting the Past

Being able to retrieve previous commands can save you a lot of time, but often you want something that is *close* to what you typed before, but not exactly the same. The Shell helps you out here, too.

First, use any of the above methods to retrieve the almost-right command from the history buffer. Then, edit it. Edit a command, you say? Sure. In the Shell you can edit commands, both ones from the history buffer and ones that you type in directly.

You can, of course, do a little editing even in the CLI. BACKSPACE deletes the character to the left of the cursor, and CTRL-X clears the entire line. The Shell adds several other editing keys.

First, you can move the cursor within a command line. <left arrow> and <right arrow> move the cursor one character at a time in their respective directions. CTRL-W jumps the cursor to the next tab stop. You can also jump the cursor to the beginning of the command line with either SHIFT-<left arrow> or CTRL-A, and zip it to the end of the command line with either SHIFT-<right arrow> or CTRL-Z.

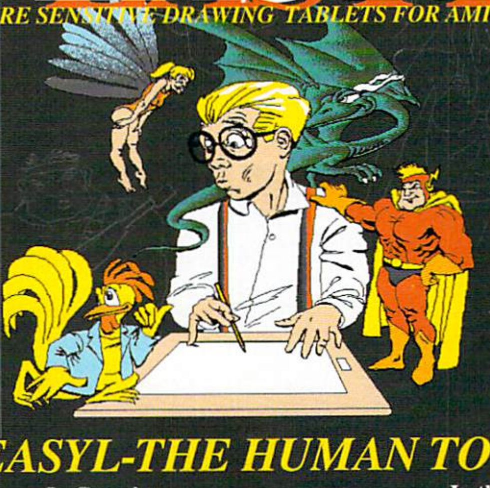
Once the cursor is where you want it, start typing and all of the characters to the right of the cursor will shift right to make room for the new characters.

Obviously, you also need some way to remove the characters you do not want. BACKSPACE still deletes the character to the left of the cursor, but now DEL deletes the character at the current cursor position. You can also delete groups of characters in several ways. CTRL-X still clears the entire line. CTRL-U erases all of the characters from the cursor to the beginning of the line, and makes the character at the cursor position the new first character in the line. CTRL-K goes the other way and clears all of the characters from the cursor to the end of the line. Unlike CTRL-U, however, CTRL-X also deletes the character at the cursor location.

With its abilities to recall previous commands and let you edit them, as well as its other new features, the Shell makes the CLI much easier and quicker to use. Have fun as you master these AmigaDOS 1.3 improvements! ■

Mark L. Van Name and Bill Catchings are contributing editors to AmigaWorld. *Write to them at 10024 Sycamore Rd., Durham, NC 27703.*

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AmigaWorld's Summer '88

CONGRATULATIONS TO THE WINNER of the Summer '88 Treasure Hunt:

That lucky person's name and home town

who successfully tracked us through a pit of puns and a sea of sports math. Watch our "Notepad" column in the January '89 issue for a report on the winner and the presentation ceremony at the Mark Hopkins Hotel in San Francisco.

Although some readers chided us because they felt the contest was too difficult and clues too obscure, we never doubted there would be a core group of bright, resourceful, imaginative *AmigaWorld* readers out there who would get the job done. We wanted the contest to be challenging because we believed that those who stuck it out deserved some reasonable odds of winning the prize. We did *not* receive thousands of correct entries—quite the contrary—so everyone who did submit the right solution had a decent shot at winning.

But Don't Go Away Mad. . .

In recognition of those who got it right but didn't win the grand prize, we are conducting a consolation drawing. Ten consolation prizes will be awarded. Watch next month's "Notepad" column for a list of winners and prizes.

Some special awards are also in order and the recipients will receive consolation prizes to be named with the other consolation winners next month. The Congeniality Award goes to Don Boose of Freeport, NY, for his amusing analysis of the contest, which also included a number of clever alternatives to a random drawing—a tap-dance-off, a beer quaffing competition, and a quilting contest, among others. The Attentiveness Award goes to Allen Kinzey of Wrentham, MA, for being the first person to submit a correct solution. And, finally, the Champion Spark Plug Super Ignition Award goes to, yes!, Adam Kortepeter of Skillman, NJ, author of the infamous "Brain Drain in the U.S." letter in the September "Repartee" column. We received so many letters disagreeing with Adam and his contention that no one in the entire U.S. could possibly solve the contest, that we felt he played an instrumental role in spurring on *AmigaWorld* readers to meet the Treasure Hunt challenge.

We believe that others who had nothing to do with the contest also benefitted from this venture. While we don't have the exact figures, we estimate sales of Rand McNally atlases and *The Baseball Encyclopedia* increased dramatically over the past few months. Meanwhile, Amtrak phone representatives in New Orleans are still perplexed by the sudden interest in six-hour-and-three-minute train trips. For all of you who took wrong turns or detoured to places unknown but still arrived safely, here are the clues explained.

Part One

1. *Vermont* (Peterborough, NH, west across Vermont line)

2. *White House* (Calvin Coolidge, born in Plymouth, VT, becomes president)[1]

3. *Harrisburg*, PA (1600 Pennsylvania Ave., Harrisburg)

4. *Columbus*, OH (Spirit of '76, I-76 west; 76 – 6 = I-70, cross West Virginia and Ohio state lines, Columbus)

5. *St. Louis*, MO (cross Indiana, Illinois, Missouri state lines, St. Louis)

6. *I-55* ("When I'm 64," I-64; I-57 at Mount Vernon, IL, (15 ÷ 5) × 11 + 22 = I-55)

7. *I-40* (cross Arkansas state line, 20-Mule Team Borax × 2 = I-40)

8. *I-30* (Little Rock, AR, 4 + 3 + 6 + 10 + 3 + 3 + 1 = I-30)

9. *Dallas*, TX (Texarkana, Texas, Dallas)

10. *San Antonio*, TX ("Five Easy Pieces," 30 + 5 = I-35, south to the Alamo in San Antonio)

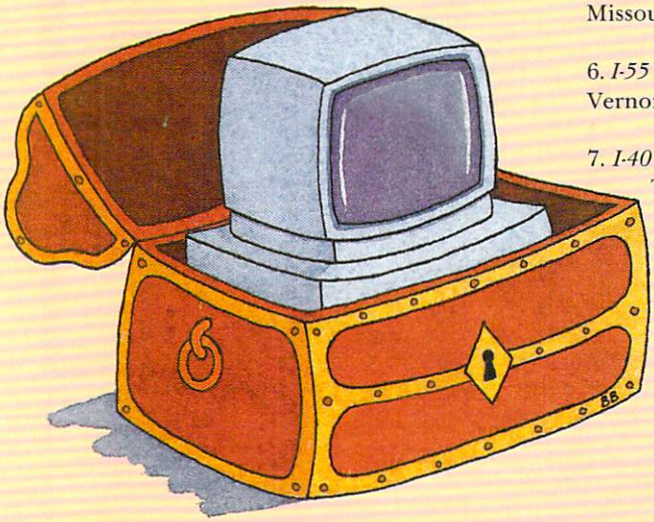
11. *Corpus Christi*, TX (18th hole at Augusta is par 4, eagle = 2, 2 + 35 = I-37, head for the coast, Corpus Christi)

12. *East* (Old North Church, "Two if by sea," the sea is to the East)

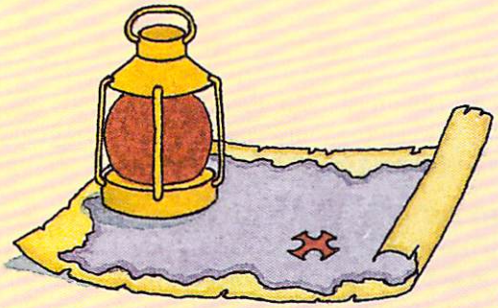
13. *New Orleans*, LA (halfway across the Gulf of Mexico, all are Englishmen and the English are noted for their fondness for a glass of Port after dinner, at sea port = left, New Orleans, LA to the left)

14. *Batesville*, MS (Amtrak train 58-The City of New Orleans leaves New Orleans at 4:45 pm, arrives 6 hours and 3 minutes later, at 10:48 pm, at Batesville)[2]

15. *Louisville*, KY (Batesville – e = Batsville, nickname for Louisville, home of the Louisville Slugger baseball bat)



Treasure Hunt



16. *Cooperstown*, NY (baseball bats, Baseball Hall of Fame is in Cooperstown)

Part Two

17. *I-90* (Directed by Alfred Hitchcock, "North By Northwest" starred Cary Grant, the climactic scene takes place on Mount Rushmore, "Go West, young man, and grow up with the country." on I-90)

18. *Port Dover*, Ontario (Buffalo, NY, Dunkirk, NY for the WWII evacuation by sea from Dunkirk, France to Dover, England, cross Lake Erie to Port Dover)

19. *Detroit*, MI (North, Bill Terry was the last National League player to bat .400 or over with .401 in 1930, Route 401 west into Detroit, MI)

20. *Battle Creek*, MI (A miner '49-er backwards is 94, I-94 west to Battle Creek, MI)

21. *I-80* (I-69 south ends in Indianapolis, IN, Oz's Wicked Witch of the West melted, take Route 74 west across Illinois line, 4 + 2 + 74 = I-80)

22. *I-35* (cross Iowa line, Thelonius Monk (jazz pianist) and Art Monk (football player), Des Moines is French for "of the monks," from Des Moines travel up I-35)

23. *I-90* (cross Minnesota line, Lou Brock stole 938 bases, which are 90 feet apart, go west on I-90)

24. *Devil's Tower* (cross South Dakota and Wyoming lines, enter the Black Hills to find Devil's Tower)

25. *I-25* (back to I-90 west, 8 + 17 = I-25)

26. *Garden of the Gods* (south through Casper, WY, cross Colorado line, south to Garden of the Gods)

27. *Trinidad*, CO (I-25 south, in da dirt = trinidad)

28. *Ulysess*, KS (Route 160 in binary, yeast − y = east, cross Kansas line, Stephen Daedalus, Leopold Bloom, and Molly Bloom are characters in James Joyce's "Ulysess")

29. *Route 50* (go north on Route 25, 25 × 2 = 50, east on Route 50)

30. *Wichita*, KS (1, 1 + 2 = 3, 3 + 2 = 5, I-135, Robert Falcon Scott explored the Antarctic, Glenn Campbell's "Wichita lineman is still on the line," Wichita)

Part Three

31. *Route 54* ("54° 40′ or fight!")

32. *Kingman*, KS (go west through Midway, Dave Kingman, "All the King's Men" by Robert Penn Warren, Kingman)

33. *I-40* (west on Route 54 across Oklahoma, Texas, and New Mexico lines to I-40)

34. *Route 666* (west to take a Gallup Poll, Gallup, NM; the mark of 666 was the sign of the anti-Christ in Revelations, Route 666)

35. *Monticello*, UT (Route 666 north across Colorado and Utah lines, Thomas Jefferson's estate was Monticello)

36. *I-70* (Route 191, 1 + 9 + 1 = 11 Triple Crown winners; north to I-70)

37. *Big Rock Candy Mountain* (a Western omelette, west on I-70 to Big Rock Candy Mountain)

38. *Ogden*, UT (I-70 west to I-15 north, Ogden Nash wrote the two poems, Ogden, UT)

39. *Idaho* (I-84 north across Idaho line)

40. *Biggs*, OR (north across Oregon line, E. Power Biggs is a famous pipe organist, Biggs)

41. *Route-97* (Wilt Chamberlain scored 100 points, 3-point shot, 100 − 3 = Route I-97)

42. *Kent*, OR (south on Route 97 Superman's alias is Clark Kent)

43. *Red Bluff*, CA (Route 97 south across California line to I-5 south to a blushing, bluffing poker player in Red Bluff)

44. *San Francisco*, CA (I-5 south to I-80 west which ends in San Francisco)

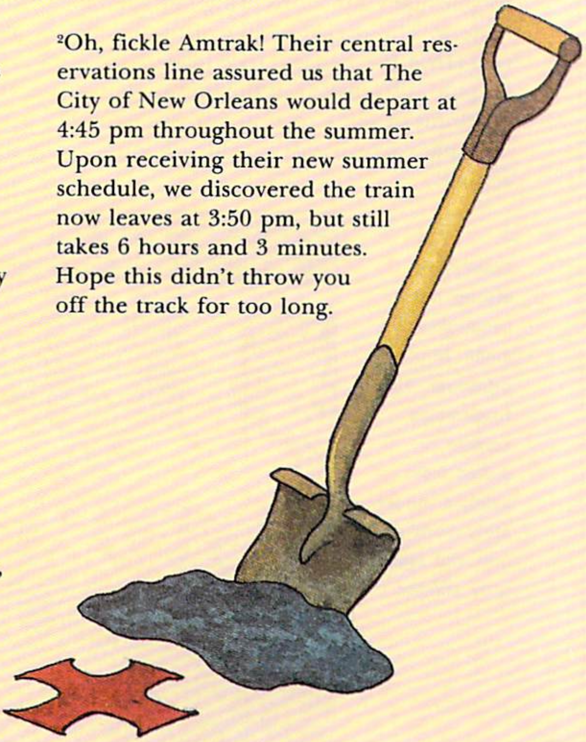
45. *603/924-3744*

The Final Clue: *Mark Hopkins Hotel*

Notes:

[1]While "Silent Cal" was born in Vermont, reader Tom Gautsch correctly pointed out that he moved to Massachusetts and became the Governor prior to assuming the office of Vice-President in 1921. To further complicate our clue, Coolidge took up residence in the White House in 1923 not by a vote but because current president Warren Harding died in office.

[2]Oh, fickle Amtrak! Their central reservations line assured us that The City of New Orleans would depart at 4:45 pm throughout the summer. Upon receiving their new summer schedule, we discovered the train now leaves at 3:50 pm, but still takes 6 hours and 3 minutes. Hope this didn't throw you off the track for too long.



from p. 20
well-worn ribbon can you discern the difference between the fourteenth and fifteenth strikes.

Off to the Fitting Room

Before using FinePrint you must configure it to your printer. The FinePrefs utility lets you specify parallel or serial port, printer type, and the resolution you want. The program uses this information to create a file called Fine.cfg (you will see its icon on your disk). FinePrint relies on Preferences only for baud rate and parity information for serial-port printers; the program provides its own set of printer drivers (in fact, you can set Preferences to one printer while FinePrint drives another).

All the supported printers have at least two resolution options, so you may want to create other configuration files. I ended up with six for my printer, in resolutions of 60, 120, and 240 dots-per-inch horizontally by 72 dots-per-inch vertically for paper widths of both 8 and 13½ inches. Additional vertical resolutions are available for 24-pin printers.

You can start FinePrint from Workbench, the CLI, or by clicking on one of your custom-configuration icons. If you want to change resolutions, you must restart the program—a rather inconvenient set up.

FinePrint is mouse driven, but you can trigger many functions using key combinations. The package will work with any non-HAM IFF image. Once loaded, the graphic is displayed in the bottom left quadrant of the screen in gray-scale format that corresponds to your ribbon setting.

FinePrint recognizes three ribbon grades: new, medium, and old. I was nonplussed to discover that ribbons I considered well worn (I use a ribbon until bold print becomes faded) measured up as only moderately used by FinePrint's standards. The palette, which controls the density and contrast of the printed image, also adjusts according to ribbon setting.

Experimenting is a must, and FinePrint makes the process easy. Simply display your image in one window and copy it to two others; now you can modify any of them and compare your results. By adjusting a palette, you can even improve the contrast of a poorly-defined image. Once you get a combination you like, you can save it.

Although the FinePrint drivers appear to be efficient, it takes a fair amount of time to print an image. Starting with a 32-color low-resolution (320 × 200 pixels) image, I found that a 480 × 200-dot printout took about nine minutes using an old ribbon. To use FinePrint you will have to know your printer's resolutions, as well as the original sizes of the images you are working with. FinePrint measures printouts in terms of printer dots; a 480 × 200 image translates to 4 × 2¾ inches at a printer resolution of 120 × 72 dots per inch (dpi).

FinePrint allows you complete control over printout size. Small prints—less than the width of the page—can be horizontally positioned, while larger images are dumped in strips. Strip printing is done either automatically (in which case it prints strips continually) or manually, whereby the program waits for you to tell it when to print the next strip. Manual mode requires that you specify the starting pixel of the original screen image; in either case, you must define the starting pixel for each strip. FinePrint can print graphics as they are displayed, or you can rotate them sideways. There is no limit to the size of a printout, although the manual addendum says that a 1000-foot project may take 50 years to complete.

The Gray Area

While nearly all of the supported nine-pin printers are capable of vertical resolutions finer than 72 dpi, FinePrint does not make use of this capability. Consequently, printouts must be of a certain size to retain detail. For example, at 72 dpi, a non-interlaced (200 line high) image must be at least 2.78 inches tall and four inches (480 dots) wide at 120 dpi to preserve detail and maintain screen-aspect ratio.

Another oddity is that even when a ribbon is sufficiently worn to allow for 15 strikes, the difference in perceived density between strikes is not uniform. More ink builds up between the first three or four strikes than over the remainder of the range, making it difficult to predict how prints will look.

The program is best for creating small, high-resolution gray-scale graphics. It turns out high-quality results and is easy to use. If you have the right hardware, FinePrint deserves a spot in your bag, or disk, of tricks.

FinePrint
Designlab
PO Box 419
Owego, NY 13827
607/687-5740
$49.95
Dot-matrix printer required.



FinePrint's strong suit is producing small, hi-res printouts. This true-to-size sample resulted from using a moderately-worn ribbon and eight gray shades.

Videoscape 3D 2.0

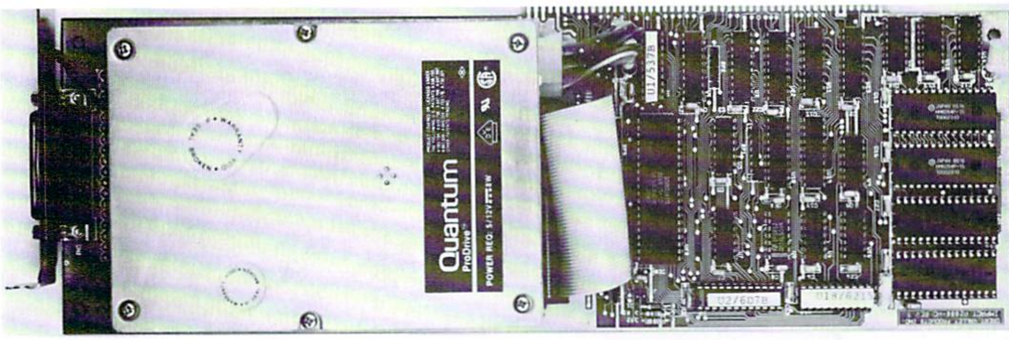
Even better than before.

By Sheldon Leemon

DESPITE ITS FEW limitations, the original Videoscape 3D was a pioneering effort—the first program to place true ►

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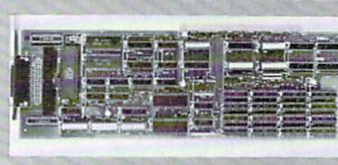


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three-dimensional animation within reach of a broad range of Amiga owners. (Videoscape 3D 1.0 was reviewed on p. 34 in the January '88 issue of *Amiga-World*). The new Videoscape, version 2.0, removes many of the earlier constraints and adds a host of new features.

DRAWING UP CHANGES

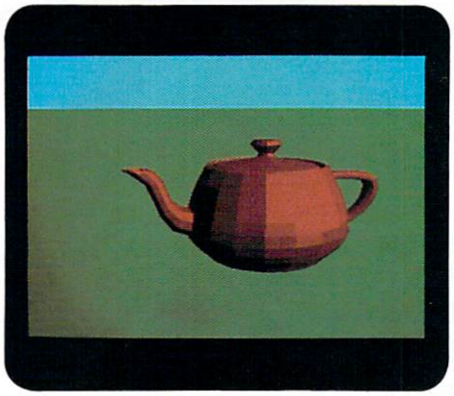
Videoscape 2.0 enhances the rendering of 3-D objects in a number of ways. It adds support for the 4096-color Hold-and-Modify (HAM) mode and the 64-color Extra_Halfbrite mode (Extra_Halfbrite, a low-resolution mode in which 32 darker duplicates are added to the original 32 colors, is accessible by all Amiga 500 and 2000 models and some A1000s). The latter allows Videoscape to achieve only slightly better shading, and the program supports it mainly to allow the importation of Halfbrite background and foreground pictures. The use of HAM (which is available on all Amigas), on the other hand, improves object shading substantially, enabling the addition of new surface textures. Although HAM images look far better than 16- or 32-color pictures, they also require more time and memory to render.

The update expands the fixed 12-color palette to 16 colors through dithering to simulate cyan, light cyan, purple, and light purple. You can now alter the default palette with a paint program, though the shading relationships between colors must be maintained. You can also give objects attributes that cause them not to appear as distinct shapes; instead, objects thus treated will merely modify the rest of the scene. These attributes include invisibility and a darkening (shaded) and brightening (spotlight) effect. While Videoscape 2.0 does not render drop shadows automatically, you can create them using shadow polygons.

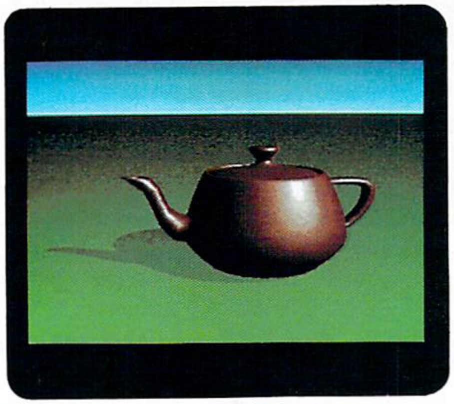
New surfaces include transparency, which makes an object look like glass, and reflective chrome, which imparts a mirrored appearance. The smooth-shading option uses a technique known as Phong shading to make a group of flat polygons seem rounded. While you can achieve some of the transparent effect in 16- and 32-color modes through dithering, HAM is required to attain a real glass-like effect. Chrome and smooth shading are available only in HAM mode.

To take in all the new effects, Videoscape 2.0 allows you to expand the display area. Use the Severe Overscan mode to create hi-res animations 768×480 pixels in size, and low-res screens of 384×440. PAL support automatically scales the display to the proportions of the European television standard.

The previous version of Videoscape could not draw intersecting objects accurately, which made it extremely difficult to portray one image passing through another. With the new Z-buffer option turned on, such effects are rendered correctly. As currently implemented, however, Z buffering is memory intensive: In the default hi-res overscan mode, this feature alone uses more than a megabyte of RAM. To illuminate your stage, this version lets you place up to four light sources (instead of one) of various intensities.



Videoscape 3D 1.0 rendered this famous teapot.



The 2.0 HAM image uses Phong shading, shadow polygons, and a multi-palette background.

SHAKEN MOVERS

The first of the important new animation features is object tracking. The original version requires you to make some tricky calculations to create a file that controls the heading and tilt of the camera. In the new version, you designate a target object, and the camera tracks it automatically.

A feature called hierarchical motion enables one object to move relative to another. When a man is walking, for example, his legs must not only move up and down but also follow the torso. With hierarchical motion, you need only describe the up-and-down movement, leaving the program to figure and supply the forward motion from that of the torso.

Minor animation add-ons include Metamorph and Zoom with non-linear options; these speed transformations at the beginning and slow them down toward the end for a more natural look. A new motion-file format allows the use of scale factors for squashing and stretching effects. You can also specify a series of foreground and background IFF images, so that images change automatically with each frame.

Although the OCT program now allows you to store objects in binary format (which loads faster), and EGG can abort without taking you through all of the entry parameters, object editing has otherwise remained much the same.

After rendering an animation, you no longer lose your scene; new menu items let you selectively clear objects only or entire scenes. You can also begin rendering at any frame (rather than just at the beginning), and save full frames automatically to disk. Key frames and moving objects capacities have both been extended to a maximum of 50.

While Videoscape 2.0 is powerful enough to render short films, most desktop-video enthusiasts will use it to create animated logo and titling sequences. In combination with an object-creation program or with pre-made objects, Videoscape 2.0 provides a relatively quick way to turn out impressive titles and special-effects series.

Videoscape 3D 2.0
Aegis Development
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TxEd Plus 2.0

Still the one for me.

By Louis R. Wallace

THE ORIGINAL TxEd text editor has become a mainstay for me. It gives me exactly what I need for writing source code without a lot of frills to get in the way. I worried that this simplicity might be lost in the enhanced version, TxEd Plus. My worries were for naught, though. MicroSmiths has added new features, but left the rest as it was.

Something Old

Carried over from the original package are its ease of use and speed of execution. A full-screen text editor allows you to move around your document quickly using the cursor keys and mouse. Cut, paste, and insert features, as well as search-and-replace options, are at your disposal. The menus are so simple that just about anyone, regardless of experience, can use the program without looking at the manual. Dislike the mouse? There are keyboard equivalents for most functions.

Like TxEd, TxEd Plus makes good use of the Amiga's multitasking nature. It is a well-behaved program, one that you can leave running while working with your compiler or telecommunications package, for instance, without worry of a crash. You can open multiple windows to work on several documents at the same time, and you can open a new CLI window whenever you like. Because it supports the Amiga's clipboard device, you can quickly transfer blocks of text between documents.

Something New

A number of new commands help you move through the text more easily; you can jump from word to word, page forward and backward, and skip to the beginning or end of a file. TxEd Plus has taken the original Word Wrap a step further with the Paragraph option, which forces all lines to the maximum width of the screen and leaves the right edge ragged.

The Formatted Entry option lets you use the Enter key to move to a new line. Instead of sending you back to the far left of the line as the Return key does, Enter indents your cursor the same amount as the previous line. This is a helpful feature for programmers, one lacking in many other text editors and even some of the most advanced word processors.

You can change TxEd's menus and keys using the TxEd Plus Command Language, a collection of 51 commands. Many of these commands are menu selections from the program, but the Command Language lets you string them together into macros. You can even reconfigure the menus themselves, adding and replacing menu options until you get the set you need. TxEd Plus also supports the ARexx macro script language, which seems to be emerging as the "standard" [for more information, see "ARexx: New Kingpin of Multitasking," p. 55].

Something Extra, Too

TxEd Plus includes some useful utilities. First is BlitzDisk, a disk-caching program. A disk cache is a RAM buffer reserved for storing information from your disk drives. Once the cache receives information, be it directories or programs, subsequent access to it is much faster than reading from disks.

Activating the FunKeys option lets you use your ten function keys to pop open a CLI window, or control operations for which you would normally need the mouse (rearranging and activating windows, for instance). You can even configure two of the function keys yourself.

The FastFonts utility greatly speeds the printing of text on the Amiga display. FastFonts was built into the original TxEd, but now it is a separate program that you can include in your startup-sequence. [Both the FastFonts and FunKeys modules were reviewed as part of the now-extinct FastFonts program package on p. 77 in the April '88 issue of *AmigaWorld*.]

The AmigaDOS Replacement Project (ARP) is also included. ARP [see "The AmigaDOS Workout Disk," p. 40, in the August '88 issue of *AmigaWorld*] is a set of CLI commands designed by a number of independent programmers whose goal was to produce faster, smaller, and more

reliable CLI commands.

I like TxEd. I like TxEd Plus even more. If the text editor you currently use is holding you back, give this package a try. I think you will be happy with it.

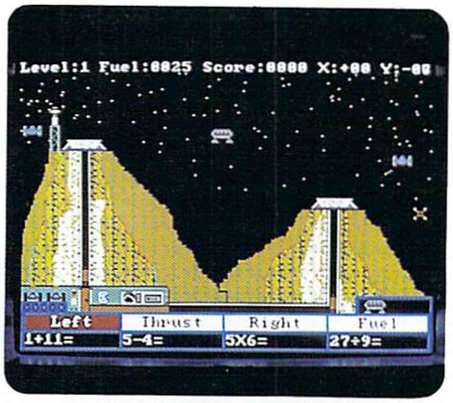
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Space Math

Elementary math on the fly.

By Neil Randall

THE CONCEPT OF Space Math is simple: You must guide a spaceship toward a choice of landing platforms by answering math questions. On the screen, one question appears under each of the Left, Right, Thrust, and Fuel categories (you can specify all addition, all subtraction, all multiplication, all division, or any



Think and act fast to avoid a crash.

combination of problems). A correct answer under Left moves the module to the left, while answering the question below Right shifts it to the right. Correct responses to Thrust counteract gravity and move the craft upwards; accurate answers to Fuel give the module energy to accomplish its thrusts.

The name of the game is scoring points. Landing safely earns the most points; landing quickly gets you a bonus score. Correct answers yield points individually, and crashing the module subtracts from your total. You can exchange points for fuel (in addition to answering the Fuel questions), but the more fuel points you retain the higher your score will be at the end of the game.

Space Math is designed for children aged seven to thirteen. Before you start the game, you can adjust the difficulty level to Easy, Medium, or Hard in the Lander, Problems, and Hazards categories. Raising the Lander difficulty increases the gravitational pull on the ship, while opting for a high Hazards level makes obstacles move faster and heightens their destructiveness. Higher Problem difficulty yields harder questions. No matter which combination of levels you choose, increasing the difficulty increases the number of points awarded to you.

There are eight screens in Space Math, each with hazards. On the first two screens, UFOs zip about, and you must avoid them as you maneuver for a landing. The third screen introduces meteors, while the fifth contains a black hole just waiting for you to get too close. On screen six, laser beams threaten the landing module, and partially-visible energy spheres cause the trouble on screen seven. The lasers return on the last screen, but more dangerous are the moving hooks.

Obviously, there's a considerable amount to do—deciding whether to move left or right, to thrust, or to try for additional fuel, then answering the questions correctly, while avoiding obstacles and making sure you land the module gently. Space Math keeps even the most adept students busy. In fact, the program demands too much. You should be able to toggle game elements on and off. The beginner, then, could choose to use just the left and right commands, adding thrust later and fuel considerations later still. After that, hazards could come into play. As it stands, the game is very difficult to play, especially for the first several tries.

In a Flash

The philosophy of Space Math is that forcing a student to answer questions quickly, and making their answers actually do something, will help them learn ►

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math. In other words, Space Math is a high-tech drill program. When I was in school, drill contests were common; we would answer flash cards as quickly as we could. The problem was that students who learned to answer quickly were those who already excelled in problem solving.

Space Math has an identical framework. The package makes no attempt (nor does it advertise one) to teach math concepts; its only purpose is to exercise those concepts. The result is predictable. My older child, who has trouble with arithmetic, found the answering difficult, while my younger child simply couldn't keep up.

As a drill, Space Math has a fair bit to recommend it. It's graphically pleasing, its pace is quick, and to the extent that it can be played at all, it is rewarding. To be completely useful, though, it must be partially redesigned. Students need more options (including easier questions for lower-grade students), so that the game can be better tailored to their needs. With such structuring, Space Math would be a good pedagogical tool; as it stands, it is only a fair one.

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Kara Fonts Headlines

Just your type.

By Gary Ludwick

TO COUNTERACT THE shortage of Amiga display fonts, Kara Computer Graphics leads off with Kara Fonts Headlines. The Headlines collection consists of 10 color, high-resolution, dimensional typefaces, all in uppercase style. Each font comes in two sizes, most in 84 and 104 points.

Kara Fonts interfaces to the Amiga and a variety of graphics programs through the Colorfont standard developed by Interactive Softworks. As implemented by Kara, this standard includes a program called Colortext that allows Kara Fonts to be rendered in four- and eight-color versions. With Colortext, Kara Fonts are compatible with any software that uses the standard Amiga fonts, as well as programs that can save in the IFF format. Some products, Video Titler (Aegis) included, contain Colortext, so there is no need to use the separate program included with Kara Fonts.

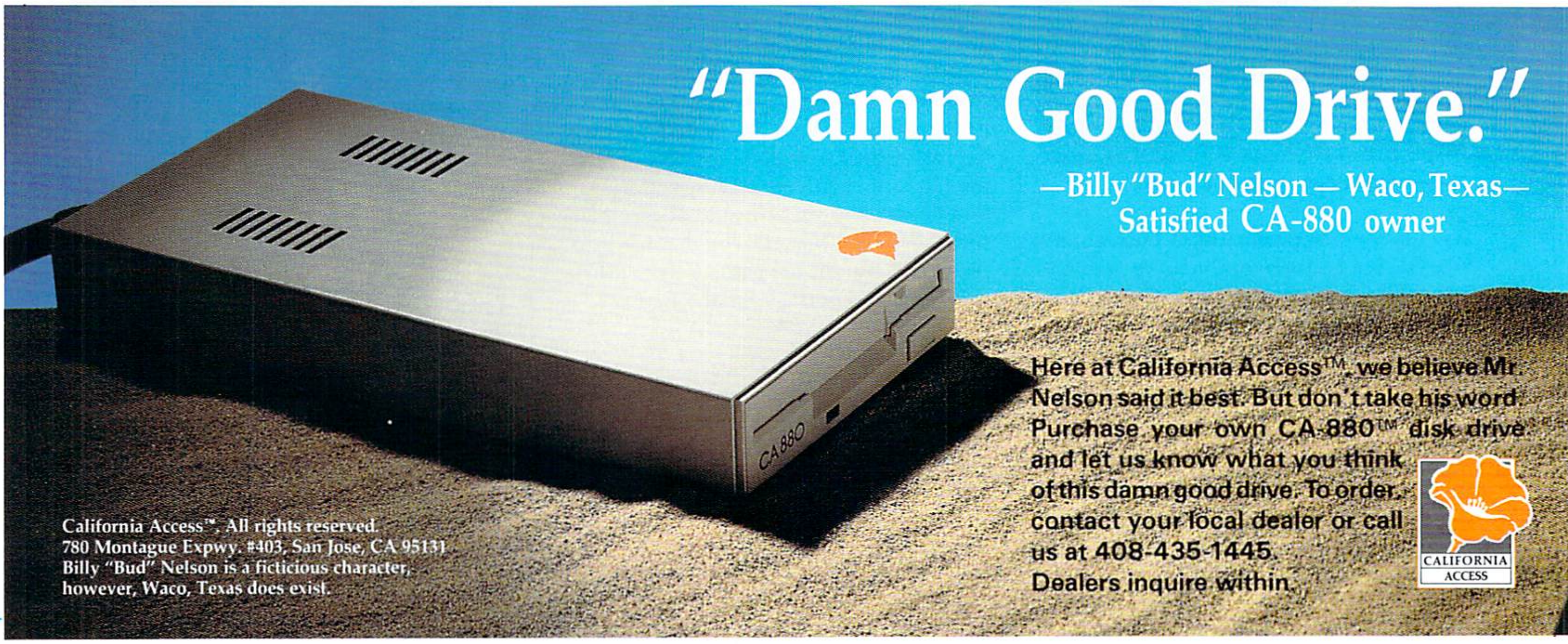


Kara Fonts Headlines head off dull displays.

The program, provided on three non-copy-protected disks, is easy to use. With Video Titler, for instance, you simply place the disk containing the desired font into your second drive (df1:) and open the windows of both programs. Before starting VideoTitler, you must run a Kara Fonts program called Assignfonts, a utility that tells the master program where to find the fonts (you will type in "df1:fonts:"). For programs that do not have Colortext integrated, you must also double click on the Colortext icon in the Kara Fonts window.

The manner in which you use the fonts depends on your master program. In VideoTitler you bring up the Install Fonts menu and load your choice from the Kara Fonts disk in df1:. With DeluxePaint II, you load the Font menu from the Font directory, select a style, then go to the Brush menu and choose Load Brush. Now click the df1: gadget, select a font style, and load it. Finally, from the Color Menu you select Use Brush Palette.

If you switch font disks in df1: after start up, you must go back to the Work-►



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bench screen and rerun the Assignfonts utility—a small inconvenience.

LOOKS ARE EVERYTHING

How do the fonts look? In both high and low resolutions, great! The Chrome and Column faces are especially useful, followed in descending order (of my preference) by Chisel Serif, Bevel, Cast, Chisel, Granite, Marble, Wood, and Brick. A fully-assignable eight-color palette loads with each font. All three Kara Fonts disks include a Brush drawer containing alternative palette variations. For instance, the Chrome face has polished gold and brass variations, as well as a two-tone stainless-steel look.

The Kara Fonts Headlines package is a useful and much-needed accessory for any Amiga user involved in type, particularly video-graphics fans. With some palette manipulation, these fonts will also work well in desktop publishing. Kara Computer Graphics has made an excellent start; I hope that other, similar collections will follow.

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UNH PROLOG FOR THE AMIGA

The image and likeness of Clocksin and Mellish.

By Scott D. Palmer

PROLOG IS AN increasingly popular language for artificial-intelligence (AI) applications, including expert systems and natural-language processing. UNH (University of New Hampshire) Prolog for the Amiga is a solid, if unexciting, implementation of standard Clocksin & Mellish Prolog, a subset of Edinburgh or DEC-10 Prolog (although the three terms are often used interchangeably). With the package, you get a Prolog interpreter with standard debugging facilities (including program tracing and spypoints), and all the language's standard predicates and functions.

UNH Prolog is sold by the University of New Hampshire's Computer Science Department, and, with its photocopied manual and reference booklet, seems intended for a college programming course. The documentation provides a 32-page tutorial and describes the syntax of this particular Prolog version. There are no fancy windows or pull-down menus; you simply enter commands at the prompt.

You must supply your own program editor, but a basic one will do. Because UNH Prolog for the Amiga is a fairly straightforward port of the Unix version, and does not take advantage of the Amiga's graphics or sound capabilities, you can use only text. Unlike the Unix version, however, Amiga UNH Prolog does not allow you to call C language functions from within a program.

THANK GOODNESS FOR STANDARDIZATION

Most microcomputer implementations of Prolog, however good they are, tend to ►



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be eccentric, following idiosyncratic syntax and adding extensions ad libitum. While there are reasons for such designs (they usually make programs run faster), alternatives make for some confusion. Not so for UNH Prolog; except for a few minor points, the system follows the standard so closely that you can learn it entirely from any book on standard Prolog.

Because Prolog is radically different from other programming languages, the standard implementation is logical and important. First, Prolog is a declarative rather than a procedural language: Instead of giving your program a step-by-step procedure for processing information, you must enter facts and rules from which the program can draw conclusions when responding to questions. Also, it is important for a Prolog program to be able to modify itself, adding facts and rules, as it runs. Clocksin & Mellish Prolog has built-in predicates to add these to the program (asserta, assertz) and to remove them (retract). UNH Prolog supports these and all other main predicates defined in the standard. Idiosyncracies, such as the mandate for single quotes around program names in the Consult command, are very minor, and there are few additional non-standard predicates.

Because UNH Prolog provides an interpreter rather than a compiler, you must run it with each program you create. That is one price you pay for having the ability to make program changes at run time (another price: programs will run slower). Also, UNH Prolog is licensed to a single machine only, and unless you have a site license and use all your programs at the same place, you must buy a UNH Prolog license for each computer or program. This makes the package a less-than-ideal development tool. UNH Prolog would do well to add a compiler or offer a low-priced run-time version.

The license agreement explicitly disavows any commitment to maintain or produce new versions of UNH Prolog, and there is apparently no technical support available. The lack of support is not a major problem, however, given that UNH Prolog so closely follows Clocksin & Mellish.

UNH Prolog is a fine tool for learning standard Prolog, and it supplies all the power you need for developing small-to-medium-size AI applications with limited distribution. While it offers little besides a full implementation of standard Prolog, for many purposes that's more than enough.

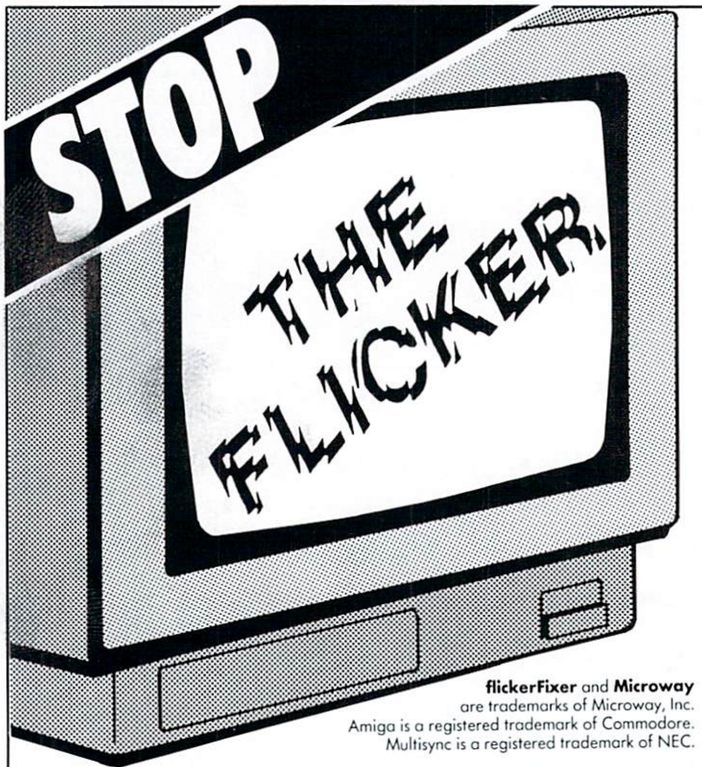
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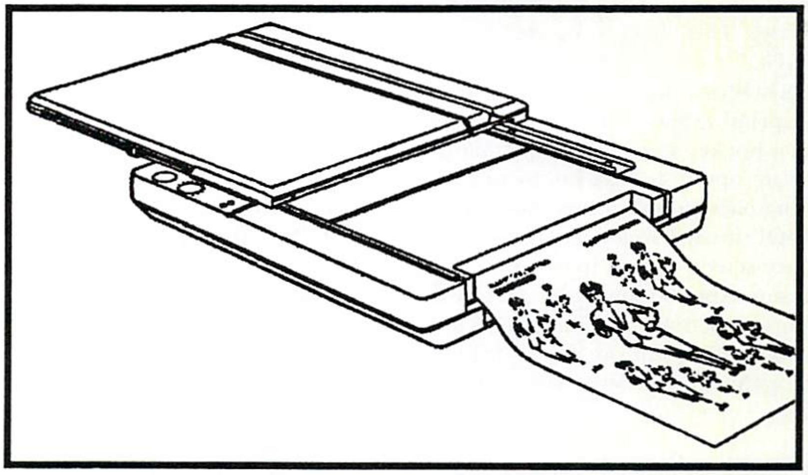
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rected to the printer. If this sounds suspiciously like a virus, you have the right idea. This attack, however, is beneficial.

TURBOPrint touts an ability to improve printing speed. The program also offers a hot-key triggered utility that includes an option to save ink by not printing background colors. Because TURBOPrint survives warm boots, it can produce screen dumps from autobooting programs. Also, because you can transfer Preferences settings onto your TURBOPrint work disk, you can adjust displays on programs that do not offer such options.

Configure a Carbon

Before using TURBOPrint, you must make a working copy of the original disk and run the TURBOPrefs utility to install your printer and set parameters on the copy. TURBOPrefs, modeled after Workbench Preferences, presents a screen from which you can select options by clicking on gadgets. The program supplies drivers for a variety of Epson, Okidata, NEC, and Star Micronics printers, one of which is a Hewlett-Packard LaserJet compatible. A Read-Me file, written in German, provides a chart cross-referencing compatible drivers for a number of dot-matrix printers. To locate a driver, simply scroll through the list of options. If you cannot find a suitable one, you can transfer a driver from Workbench (or another source) onto your work disk.

TURBOPrefs lets you set the width-to-height ratio of printed pixels from 0.8 to 1.2 (the default value of 0.858 works well with lo-res screens). You also have a choice of four dithering patterns for gray-scale printouts. The Normal pattern uses the same four-by-four dot pattern as the original Amiga printer drivers; other patterns include a diagonal stripe (which seems to enhance contrast), a vertical stripe, and a box style.

TURBOPrint provides two printer resolutions for eight-pin machines: 120 × 72 dpi (dots per inch) and 120 × 144 dpi. The 144-dpi vertical resolution prints a row of eight dots, moves the paper up 1/144 of an inch, and interleaves the second row of eight dots. Thus, vertical resolution is effectively doubled because gray-scale patterns are half height. Other printers are supported with a 240-dpi resolution. For 24-pin dot-matrix printers, you can choose from as many as six resolutions, and for laser printers, four are available.

To start the program, insert your TURBOPrint copy at the Workbench prompt. After a few seconds, you are prompted to insert the original TURBOPrint distribution disk. The normal warm-boot sequence then continues with a prompt for the Workbench disk.

To the Dump

I own a Star Micronics LV-1615 printer, an IBM-graphics printer clone, and use the Workbench 1.2 Okidata 292 driver to run it from my Amiga. Using the Okidata 292 driver from the TURBOPrint disk, I found that the program sent garbage characters to the first line of each screen dump. Furthermore, I was unable to detect any significant improvement in printer speed. When I reset TURBOPrint to a 144 dots-per-inch vertical resolution and tried again, no garbage characters showed up. The TURBOPrefs program makes it easy to reset TURBOPrint's operating parameters without rebooting or ►

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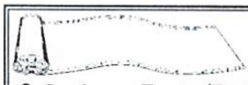
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reinstalling the disk. Once its parameters are reset, they are stored in RAM and will survive a warm boot.

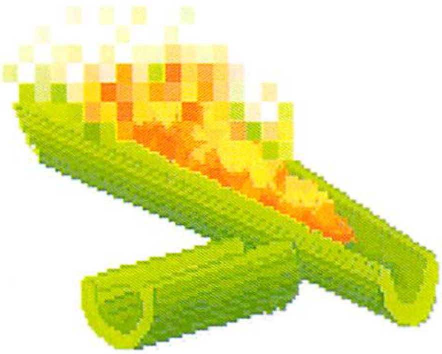
To test TURBOPrint with my Canon PJ-1080A color printer, I needed to transfer a public-domain driver, as neither TURBOPrint nor Workbench supply a compatible one. For some reason, every time I booted with the modified disk, my A2000 would lock up. Consequently, I was unable to get TURBOPrint to work with the Canon printer at all.

TURBOPrint's U.S. distributor does not provide technical assistance, but if you call they will give you the name and number of the dealer nearest you. The dealer in this area seemed genuinely concerned with my problems. He said that the lock up I experienced with the Canon printer was caused by the 1.2 driver, and suggested using the 1.3 version. (I later ran the test with a 1.3 driver and got the same result.) The lack of speed, he thought, was again the fault of the driver; without an Amiga driver specifically for the Star Micronics LV-1615 (there is none available), TURBOPrint, he stated, is unable to work to capacity. The dealer suggested I bring my copy of TURBOPrint into the store and offered to test it with other printers. Although this dealer's willingness to help was impressive, I was dismayed at not being able to get telephone assistance. I also question the consistency of support coming from so many sources.

The TURBOPrint manual contains some unintelligible statements; it was apparently translated from German. Fortunately, the functions of most features are easy to determine.

TURBOPrint has good and bad points. I was unable to coax any speed improvements out of it, but this may be due to a limitation of my printer. I like the results TURBOPrint provides at high printer resolutions with the alternate dot patterns. All things considered, however, I hesitate to recommend it to anyone but the die-hard experimenter.

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IrseeSoft SPCS
distributed by American Software Distributors
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No matter how long you have been enjoying the Amiga buffet, there are bound to be a few things you've learned (either the hard way, by chance, or from a friend) that others might not know. Is there a way to cheat at Bongo Blaster? Have you discovered a cheap source of diskette boxes? A way to fix screen flicker? A short BASIC program that calculates dates? A unique use for a digitizer? A way to insure good video signals? A snappy startup-sequence? A clever batch file? A way to make money with your Amiga? Or anything that might be useful to another Amiga owner and would fit in a few paragraphs?

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So put on your creative beanies, sharpen your crayons, ponder the implications of overnight (or a month or two, anyway) success, then get jotting. Mail your ideas to:

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Be sure to include your name and address, and remember, everything you send to us we keep, so don't send any family heirlooms, valuable jewelry, stock certificates, or cash (unless you really want to impress us, that is). First opened, first published (and we sometimes just reach into the bag, pulling out letters at random). We aren't going to send you anything until the tip has appeared in print (if it ever does), so don't expect any cards, letters, or personal visits.

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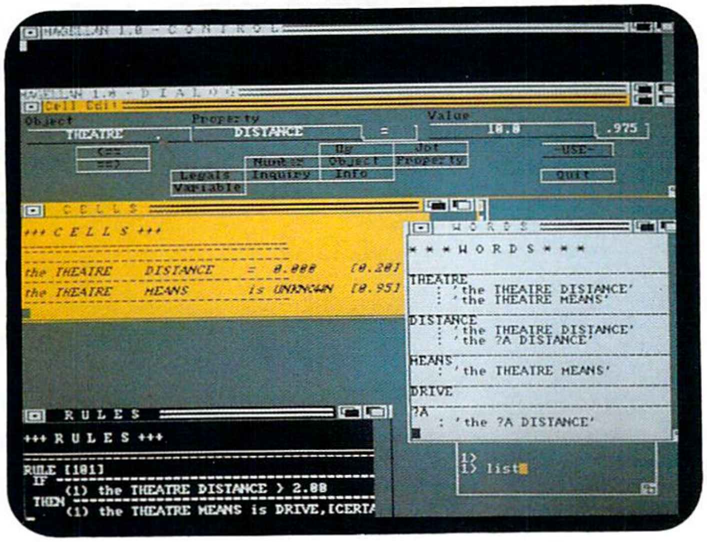
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Creative Endeavors

A NEW PROPRIETARY interface, says Creative Microsystems, makes the **Processor Accelerator** perform speedier than a Motorola 68010 processor. At $199.95, it's one-fifth the cost of an MC68020 board. Plug an MC68881 into the coprocessor socket, and you'll fly even faster.

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Look at all the features Creative Microsystems has packed into the **MIDI 1** interface: three jumper-selectable out/thru ports, MIDI in, sync out (drums machine), LEDs for displaying bus activity, a utilities disk, pass through, and complete software compatibility. MIDI 1 is available for all Amiga models; you can get an internal version for your A2000. Determined to make the unit affordable, CMI has priced MIDI 1 at $79.95. Find out more about these goodies from CMI at 10110 S.W. Nimbus, #B-1, Portland, OR 97223.

Directory Detective

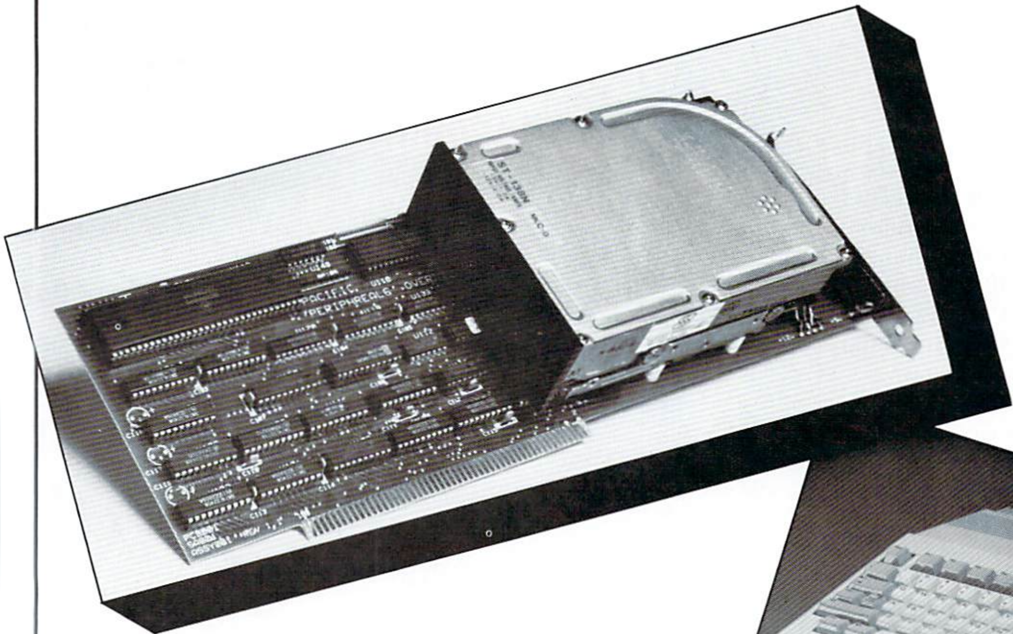
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All Aboard for Bill's

BILL'S BOARDS BUS Expander installs into an IBM AT-compatible case and attaches to your Amiga 500 or 1000. The unit accepts most expansion cards designed for the Amiga 2000, and gives you six Zorro-2 slots, three (optionally five, depending upon where you place Commodore's A2088 Bridgeboard) of which you can bridge to AT slots. It also provides six (optionally eight) IBM-compatible slots, four (or seven) of which are AT slots. To run the expander, hook up any low-cost IBM-style power supply to your AT-style chassis. The Bus Expander will cost you 495 bills; get it from Comp-U-Save, 414 Maple Ave., Westbury, NY 11590, 516/997-6707. ►

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Mount a 3.5" SCSI drive to the OverDrive and save your drive bays for other uses... like the Konica 10 megabyte floppy drive. (See below.)

- The OverDrive uses a two-channel Motorola 68440 direct memory access chip to guarantee exceptional speed and compatibility with the Amiga's Motorola 68000 microprocessor.
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- A total of 7 devices can be added in various internal or external configurations.

With all of the above, you get the easiest to use software on the market. It is completely mouse driven, making the formatting process almost automatic.

Pacific Peripherals offers Seagate 30, 50 and 62 megabyte drives as well as the Konica 10 megabyte floppy. The Konica drive operates as a 75ms hard drive using high density (480 TPI) floppy disks giving you the speed of a hard drive and the unlimited capacity of a floppy drive. Exceptional error correction capabilities make your data safer than it would be on a standard 5¼" disk.

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*uses 5¼" drive bay

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is a two-slot expansion chassis for the A500 that uses cards designed for the A2000.

An optional 3.5" floppy drive may be added as an "external" drive but is, in fact, more convenient than any drive available for the A500 (including the A500 internal drive). The 100-pin "Zorro II" A2000 expansion cards are less expensive, more uniform in design and more available than pure A500 peripherals. (For example, try to find a DMA controller designed specifically for the A500. How about an A500 Bridgecard?) Rather than take power from the A500 power supply, the SubSystem comes standard with a 54-watt power supply.

SubSystem 500	$249.00
***SubSystem 500*/drive**	$399.00

Pacific Peripherals

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CHOOSE ONE of five famous adventurers—English, German, Japanese, French, or American—and be on your way to find Professor Renegade, the only man who can stop the asteroid headed toward earth. You'll confront obstacles and gather treasures in **Cosmic Relief**, the animated multilevel action adventure.

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Figure This

IS THERE SOMETHING wrong with your system? Having trouble pinpointing the problem? Maybe you need **STU 2.0**, the System Test Utility. STU works with any Amiga model. The memory test will read, write, check, and verify disk input and output on up to four 3½-inch drives. Perform your tests in an asynchronous manner, either randomly or sequentially. If you buy this release, you will get one free upgrade. Planned enhancements include modem self-tests, integrated memory and CPU exams, and tests for hard drives. Diagnose your disks for $29.95; contact Custom Services, PO Box 254, Moorestown, NJ 08057.

A Second Introduction

WITH **INTROCAD 2.0**, you can store CAD files in Aegis Draw (Aegis Development) format for use in desktop publishing. Version 2.0 offers a Thickline feature and supports single-level gray scale for black-and-white printers. You can view angle degrees in the Show XY readout as well as with the Rotate/Variable option. IntroCAD 2.0 is $79.95; 1.0 owners can trade up for $10. Get all the details from Progressive Peripherals & Software, 464 Kalamath St., Denver, CO 80204, 303/825-4144. ►

TAKE A LOOK INSIDE





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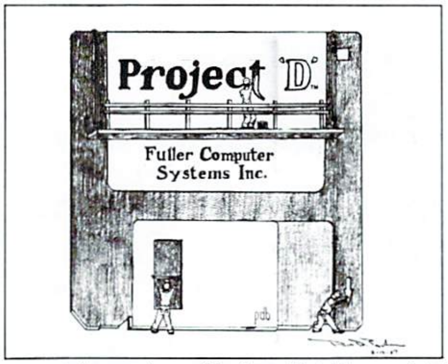
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Esprit Amiga

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Spirit is also singing praises for their new **MIDI Star** MIDI interface. The unit offers switch control for its in and out/thru ports and RS-232 interface. It also provides patch-panel distribution and star configuration to banish instrument daisy chains, signal delays, and cable changes. MIDI Star has an internal power supply, and its universal cable interfaces to all Amigas. The MS 1×4 model, with one in and four out/thru ports, is $169.50; MS 2×6, with two ins and six out/thru connections, is $229.50. Catch Spirit at 220 West 2950 South, Salt Lake City, UT 84114, 801/485-4233, 800/433-7572.

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A NEW RENDITION of that old arcade favorite QIX, **Torch 2081** challenges you to construct a defense shield while avoiding blazing fireballs. On the Amiga, the game has new twists. Take control of the Surface Defense Glider for $24.95; contact Digital Concepts, 28800 Gratiot Ave., Suite 162, Roseville, MI 48066, 313/772-1416.

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With the **GoldSpell II** spelling checker, you can load personal dictionaries and create substitute files to automatically replace slang, technical jargon, and so on. A batch-correction feature checks documents and prepares a list of misspelled words. List price is $44.95; GoldSpell owners can get the program for $20. Contact Gold Disk, PO Box 789, Streetsville, Mississauga, Ont., Canada L5M 2C2, 416/828-0913. ►

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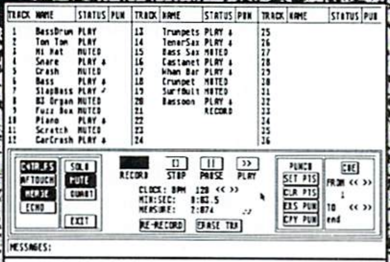
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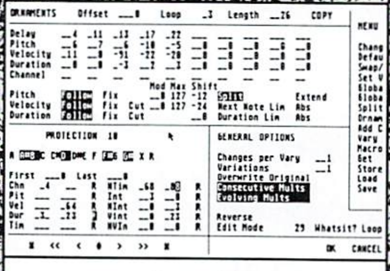
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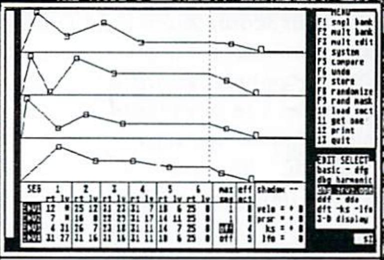
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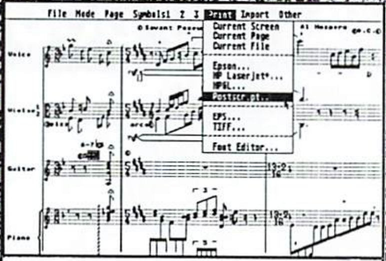


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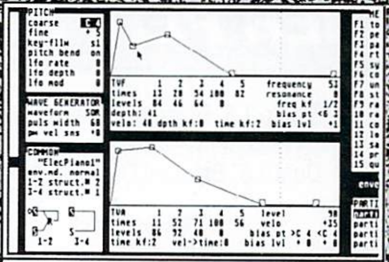
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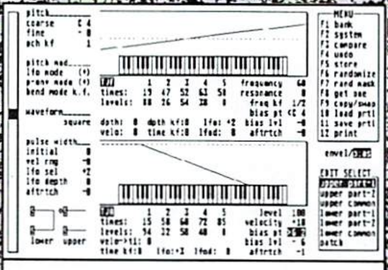
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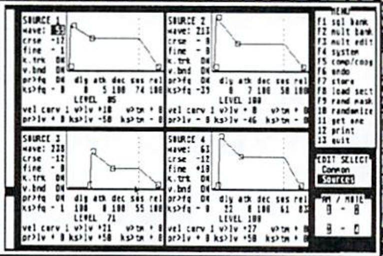
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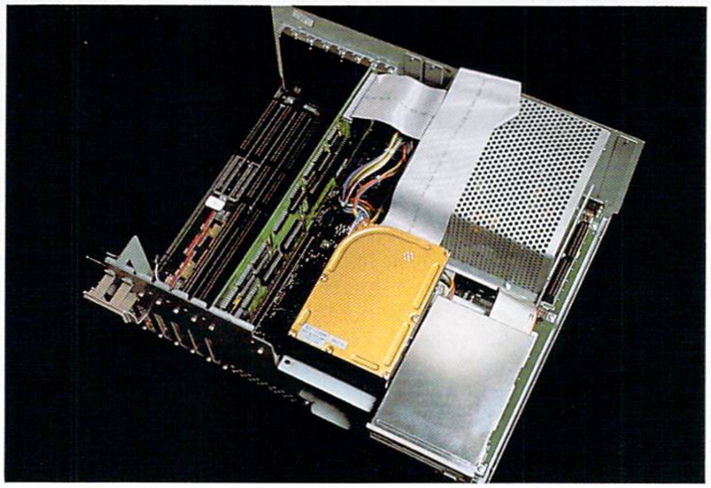


ESQ-1/SQ-80

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Droves of Drives

INTERNAL OR EXTERNAL, and in 20 ($699), 30 ($799), and 60 ($995) megabyte capacities, the **SupraDrive Hard Disk System** promises to rev up your Amiga 2000. With complete DMA access and an external SCSI port, the SupraDrive is compatible with RAM boards, digitizers, and the A2088 Bridgeboard—it supports MS-DOS partitions, too. Both versions come with formatting and utilities software to aid organization, and the internal unit is packaged with assembly materials. Do you already have a hard disk that you plan to mount internally? The **Supra Interface Kits** include everything that comes with SupraDrive except the hard disk, and are available with ($399.95) or without ($249.95) controllers. Speed your order to Supra Corp., 1133 Commercial Way, Albany, OR 97321, 503/967-9075.



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Reference Section

THE AMIGADOS CLI Reference, a pocket guide to the syntax and usage of Amiga CLI commands, is the first in a planned series of similar publications. Get the pamphlet for $3.95 (quantity discounts are available) from The Computer Club Co., 4131 Meadow Hill Lane, Fairfax, VA 22033-3113, 703/968-7588.

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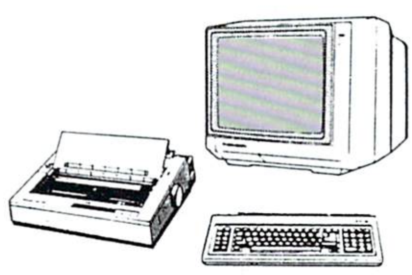
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HELP KEY

Straight from the research labs of Amiga Virus killers,

Lou, the Silicon Surgeon, fights off a deadlier disease—confusion.

By Louis R. Wallace

EDIT THE EDITOR

Q: *How can I change the Font Editor (FED) to make ColorFonts (fonts with more than two colors)? How would I use my custom fonts from Amiga Basic?*

M. Texada
Alexandria, LA

A: Commodore designed FED for monochrome fonts, and you cannot alter or change it (unless you have the source code and are a top-notch programmer). You should probably avoid multicolor fonts entirely until Commodore releases version 1.4 of the operating system. According to the representatives at the Amiga Developers Conference, 1.4 will support color fonts. A few companies have pioneered ColorFonts on the Amiga. One of the best implentations is Calligrapher ($100) from Inter/Active Softworks (57 Post St., Suite 811, San Francisco, CA 94104, 415/956-2660).

To use fonts from Amiga Basic, you must program them with functions from the graphics and diskfont libraries. See "French Fonts" in the December '87 Help Key (p. 95).

DOCTOR THE DRIVE

Q: *My Amiga 500 is only a few months old, but I am getting a lot of read/write errors that require me to use DISKDOCTOR. Every time this happens I lose valuable files or programs. The errors are always somewhere between tracks 41 and 52. I am also getting a lot of system failures with commercial software. Could the weight of my monitor (resting on the back of the A500) or its magnetic field be causing the problem?*

R. Fernatt
Bomont, WV

A: I highly doubt your problem is caused by the monitor's weight, because the A500's case was designed to partially support a monitor. For a magnetic field to affect your drive, it would have to come from the computer rather than the monitor. A more likely cause is a dirty drive head or a damaged disk drive. You can clean your drive head, but will have to take a damaged drive to a service center. If your drive is causing problems with commercial software, I recommend you have it checked soon, or else you may damage a program disk worth more than the cost of servicing the drive.

SAFE FROM YOURSELF

Q: *Can I lock my files so I cannot accidentally delete them? I am new to the Amiga and have not yet mastered all its ins and outs.*

M. Welsh
Dallas, TX

A: If the file has an icon, you can use the Workbench. Open the disk or drawer that contains the file, and click once on the file's icon to highlight it. Pull down the Project menu and highlight Info. Workbench will display a screen with the file's size, its tool type, and its status. Click on the word DELETABLE in the Status box; it will change to NOT DELETABLE. Click on the SAVE button, and your file will be protected from accidental deletion. If you decide you want to delete the file, you can change its status to DELETABLE.

If you are comfortable using the CLI, you can use the AmigaDOS command called PROTECT, which can set various flags, including the deletion flag. Open a CLI window, and type:

```
PROTECT filename RWE
```

You will be able to read from and write to the file, but will not be able to delete it.

GRAPHIC SECRETS

Q: *I need routines to read and write IFF graphic files and GIF files. Where can I find them?*

W. Lester
Elkins, WV

A: The Amiga Basic IFF routines are some of the best kept secrets in the Amiga community. They are called LOADILBM and SAVEILBM, and are excellent examples of how to use Amiga Basic to access many of the Intuition routines. The programs are on the Extras disk in the BasicDemos directory.

GIF format is another matter. I have not heard of any Amiga Basic routines that will convert IFF to GIF or the reverse. If anyone knows of such a routine, write me a letter. I will pass on the information in a future column.

COPIES ONLY

Q: *I tried to boot my Amiga 1000, and the system refused to accept my Kickstart 1.2 disk. It would, however, boot from a copy of Kickstart 1.2. The system won't accept my original Workbench 1.2 disk, but will accept a backup. Is 1.2 copy protected? Is there a hidden key in 1.2 software that only permits a certain number of copies?*

L. Strong
Costa Mesa, CA

A: The Kickstart and Workbench disks are not protected in any way. In fact, you are not supposed to use the originals at all. The manuals instruct you to copy the disks and only work from those duplicates. My guess is when you stored the disks, they were magnetically damaged. Avoid placing your disks near anything that might have an electrical field associated with it, such as your monitor, an electrical cord or some other power source.

Make extra copies of your working Kickstart 1.2 and Workbench disks, and store them in a safe place. If your current copies go bad, you can make duplicates from the backups. ■

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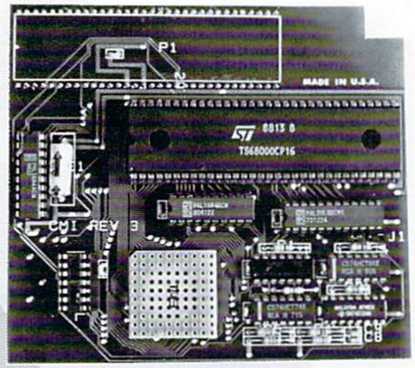
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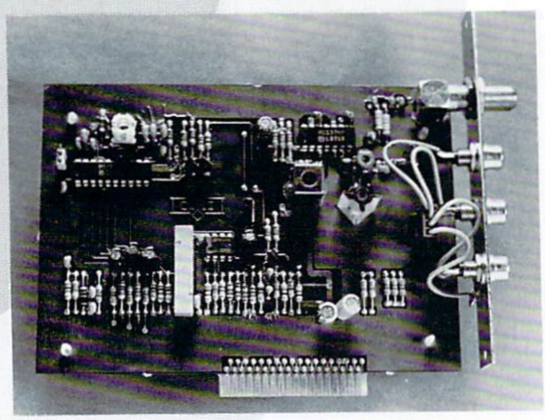
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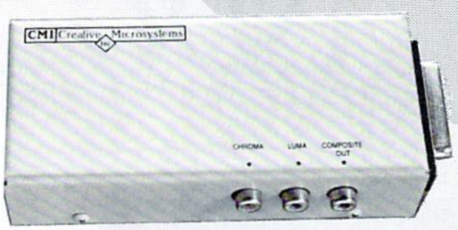
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68000er, February 1988

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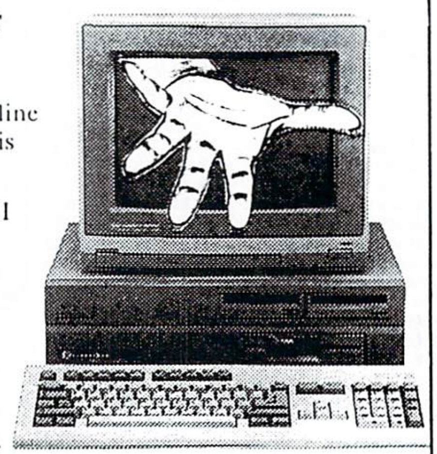
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from p. 62

```
   while (!close_down || outstanding_rexx_commands)
   {
/* if the packet (for user input) has not been
                                    sent out, send it */
     if (!packet_out && !close_down)
     {
/* send a packet to dos asking for keyboard input */
       send_read_packet(dos_message,
            window_file_handle,dos_reply_port,buff);
       packet_out = YES;
     }

/* now wait for something to come from user or rexx */
     Wait((1L<<dos_reply_port->mp_SigBit) |
                        (1L<<rexx_port->mp_SigBit));
     /* got something!! */
     /* is it a command from the user? */
     if (GetMsg(dos_reply_port))

     {
       /* not out any more */
       packet_out = NO;
/* if EOF (either the close gadget was hit or ^\) */
       if (dos_message->sp_Pkt.dp_Res1 == 0)
       {
         close_down = YES;
         Write(window_file_handle,CLOSING_MSG,
                         (long)sizeof(CLOSING_MSG));
       }
       else
       {
  /* NULL terminate the string (thanks again DOS!) */
         buff[dos_message->sp_Pkt.dp_Res1-1] = EOS;
         /* send the command directly to rexx */
         if (send_rexx_command(buff) != OK)
         {
           Write(window_file_handle,NO_REXX_MSG,
                        (long)sizeof(NO_REXX_MSG));
         }
       }
     }
     /* did we get something from rexx? */
     while(rexxmessage = (struct RexxMsg *)
                               GetMsg(rexx_port))
     {
       /* is this a reply to a previous message? */
       if (rexxmessage->rm_Node.mn_Node.ln_Type ==
                                       NT_REPLYMSG)
       {
printf("the command '%s' has terminated with code %ld,
%ld\n",rexxmessage->rm_Args[0],rexxmessage->
rm_Result1,rexxmessage->rm_Result2);
         free_rexx_command(rexxmessage);
       }
       else
       {
/* a rexx macro has sent us a command, deal with it */
/* THE MESSAGE WILL HAVE BEEN REPLIED INSIDE OF
                                 execute_command */
         execute_command(rexxmessage);
       }
     }
   }
   /* clean up */
   close_up_shop(0);
}
close_up_shop(value)
int value;
{
   if (window_file_handle)
     close_window(window_file_handle);
   if (dos_reply_port)
     shutdown_dos_reply_port(dos_reply_port);
   if (rexx_port)
     shutdown_rexx_port(rexx_port);
   if (dos_message)
     free_dos_message(dos_message); ►
```

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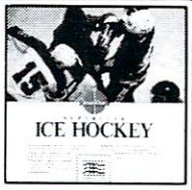
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```
    exit(value);
}
/* These are dos functions for getting and
displaying user input */
BPTR open_windoow;
{
    BPTR Open();
    return(Open(WINDOW_SPEC,MODE_NEWFILE));
}
close_window(file_handle)
BPTR file_handle;
{
    Close(file_handle);
}
struct MsgPort *setup_dos_reply_port()
{
    struct MsgPort *CreatePort();
    return(CreatePort(NULL,0L));
}
shutdown_dos_reply_port(dos_reply_port)
struct MsgPort *dos_reply_port;
{
    DeletePort(dos_reply_port);
}
struct StandardPacket *setup_dos_message()
{
    struct StandardPacket *malloc();
    struct StandardPacket *new_packet;
    /* get a packet */
    if (new_packet = malloc(sizeof(struct
                                StandardPacket)))
    {
      /* required AmigaDOS Kludge */
      new_packet->sp_Msg.mn_Node.ln_Name = (char *)
                              &(new_packet->sp_Pkt);
      new_packet->sp_Pkt.dp_Link =
                              &(new_packet->sp_Msg);
    }
    return(new_packet);
}
free_dos_message(dos_message)
struct StandardPacket *dos_message;
{
    free(dos_message);
}
void send_read_packet(dos_message,window_file_handle,
                            dos_reply_port,buff)
struct StandardPacket *dos_message;
BPTR window_file_handle;
struct MsgPort *dos_reply_port;
char *buff;
{
    struct FileHandle *file_handle;

    /* change a BPTR to a REAL pointer */
    file_handle = (struct FileHandle *)
                        (window_file_handle << 2);
    /* setup the packet for reading */
    dos_message->sp_Pkt.dp_Arg1 = file_handle->fh_Arg1;
    dos_message->sp_Pkt.dp_Arg2 = (long) buff;
    dos_message->sp_Pkt.dp_Arg3 = BUFFLEN;
    dos_message->sp_Pkt.dp_Type = ACTION_READ;
    dos_message->sp_Pkt.dp_Port = dos_reply_port;
    dos_message->sp_Msg.mn_ReplyPort = dos_reply_port;
    /* now send it */
    PutMsg(file_handle->fh_Type,dos_message);
}
/******** This is the REXX stuff ********/
struct MsgPort *setup_rexx_port()
{
    struct MsgPort *CreatePort();
    struct MsgPort *FindPort();
    struct MsgPort *the_port;
    Forbid();
/* look for someone else that looks just like us! */
    if (FindPort(HOST_PORT_NAME))
    {
      Permit(); ►
```


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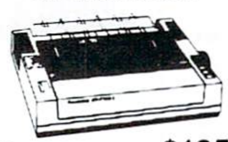
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```
      printf("A public port called '%s' already
                         exists!\n",HOST_PORT_NAME);
      return(NULL);
    }
    /* allocate the port */
    the_port = CreatePort(HOST_PORT_NAME,0L);
    Permit();
    return(the_port);
}
shutdown_rexx_port(rexx_port)
struct MsgPort *rexx_port;
{
    DeletePort(rexx_port);
}
int send_rexx_command(buff)
char *buff;
{
    struct MsgPort *FindPort();
    struct RsxLib *OpenLibrary();
    struct RexxMsg *CreateRexxMsg();
    STRPTR CreateArgstring();
    struct MsgPort *rexxport;
                      /* this will be rexx's port */
    struct RexxMsg *rexx_command_message;
                      /* this is the message */
    /* lock things temporarily */

    Forbid();
    /* if rexx is not active, just return NOTOK */

    if ((rexxport = FindPort(RXSDIR)) == NULL)
    {
      Permit();
      return(NOTOK);
    }
    /* now open the library, THIS SHOULD NEVER FAIL
                             BECAUSE REXX IS ACTIVE*/
    if (outstanding_rexx_commands == 0)
      if ((RexxSysBase = OpenLibrary(RXSNAME,0L)) ==
                                                 NULL)
      {
        Permit();
        return(NOTOK);
      }
    /* allocate a message packet for our command */
    /* note that this is a very important call.  Much
flexibility is available to you here by using multiple
host port names, etc. */
    if ((rexx_command_message =
           CreateRexxMsg(rexx_port, REXX_EXTENSION,
                 rexx_port->mp_Node.ln_Name))
/* last parameter could have been HOST_PORT_NAME */
       == NULL)
    {
      if (outstanding_rexx_commands == 0)
      {
        CloseLibrary(RexxSysBase);
        RexxSysBase = NULL;
      }
      Permit();
      return(NOTOK);
    }
/* create an argument string and install it in the
                  message */
    if ((rexx_command_message->rm_Args[0] =
       CreateArgstring(buff,strlen(buff))) == NULL)
    {
      DeleteRexxMsg(rexx_command_message);
      if (outstanding_rexx_commands == 0)
      {
        CloseLibrary(RexxSysBase);
        RexxSysBase = NULL;
      }
      Permit();
      return(NOTOK);
    }
/* tell rexx that this is a COMMAND, not a FUNCTION,
                           etc. */
    rexx_command_message->rm_Action = RXCOMM; ►
```

```
   /* and now the EASY part! */
   PutMsg(rexxport,rexx_command_message);
/* keep a count of outstanding messages for graceful
                    cleanup */
outstanding_rexx_commands++;
/* we're done hogging */
   Permit();
   /* successful, finally... */
   return(OK);
}
void free_rexx_command(rexxmessage)
struct RexxMsg *rexxmessage;
{
   /* delete the argument that we originally sent */
   DeleteArgstring(rexxmessage->rm_Args[0]);
   /* delete the extended message */
   DeleteRexxMsg(rexxmessage);
   /* decrement the count of outstanding messages */
   outstanding_rexx_commands--;
   if (outstanding_rexx_commands == 0)
   {
     CloseLibrary(RexxSysBase);
     RexxSysBase = NULL;
   }
}
void execute_command(rexxmessage)
struct RexxMsg *rexxmessage;
{
   long primary=0,secondary=0;
printf("got '%s' from rexx\n",
                          rexxmessage->rm_Args[0]);
if (strcmp(rexxmessage->rm_Args[0],"BAD") == 0L)
                                     primary = 10L;
reply_rexx_command(rexxmessage,primary,secondary,
                                        "A Test");
}
/* Replies a REXX message, filling in the appropriate
codes.  If the macro program has requested a result
string, the return argstring is allocated and
installed in the rm_Result2 slot. A result is returned
ONLY IF REQUESTED AND THE PRIMARY RESULT == 0. */
void reply_rexx_command(rexxmessage,primary,secondary,
                                              result)
struct RexxMsg *rexxmessage;
long          primary,secondary;
char          *result;
{
   /* set an error code */
   if (primary == 0 && (rexxmessage->rm_Action
      & 1L<<RXFB_RESULT)) { secondary = result ?
      (long) CreateArgstring(result,strlen(result))
      : (long) NULL;
     }
   rexxmessage->rm_Result1 = primary;
   rexxmessage->rm_Result2 = secondary;
   ReplyMsg(rexxmessage);
}
```

Listing 2. testdemo.rexx

```
/* A test program for the fancy demo. To run, */
/* issue the command testdemo from fancy's */
/* command window    */
arg code
'good'   /* a command */
say 'rc=' rc 'result=' result
'BAD'    /* another command */
say 'rc=' rc 'result=' result
/* now request a result string */
/* (an extension in ARexx) */
options results
say 'Requesting results'
'good'   /* the good command again */
say 'rc=' rc 'result=' result
exit code   /* return the argument */ ■
```


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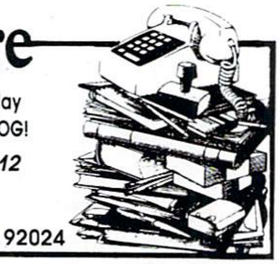
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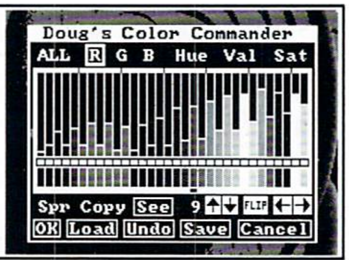
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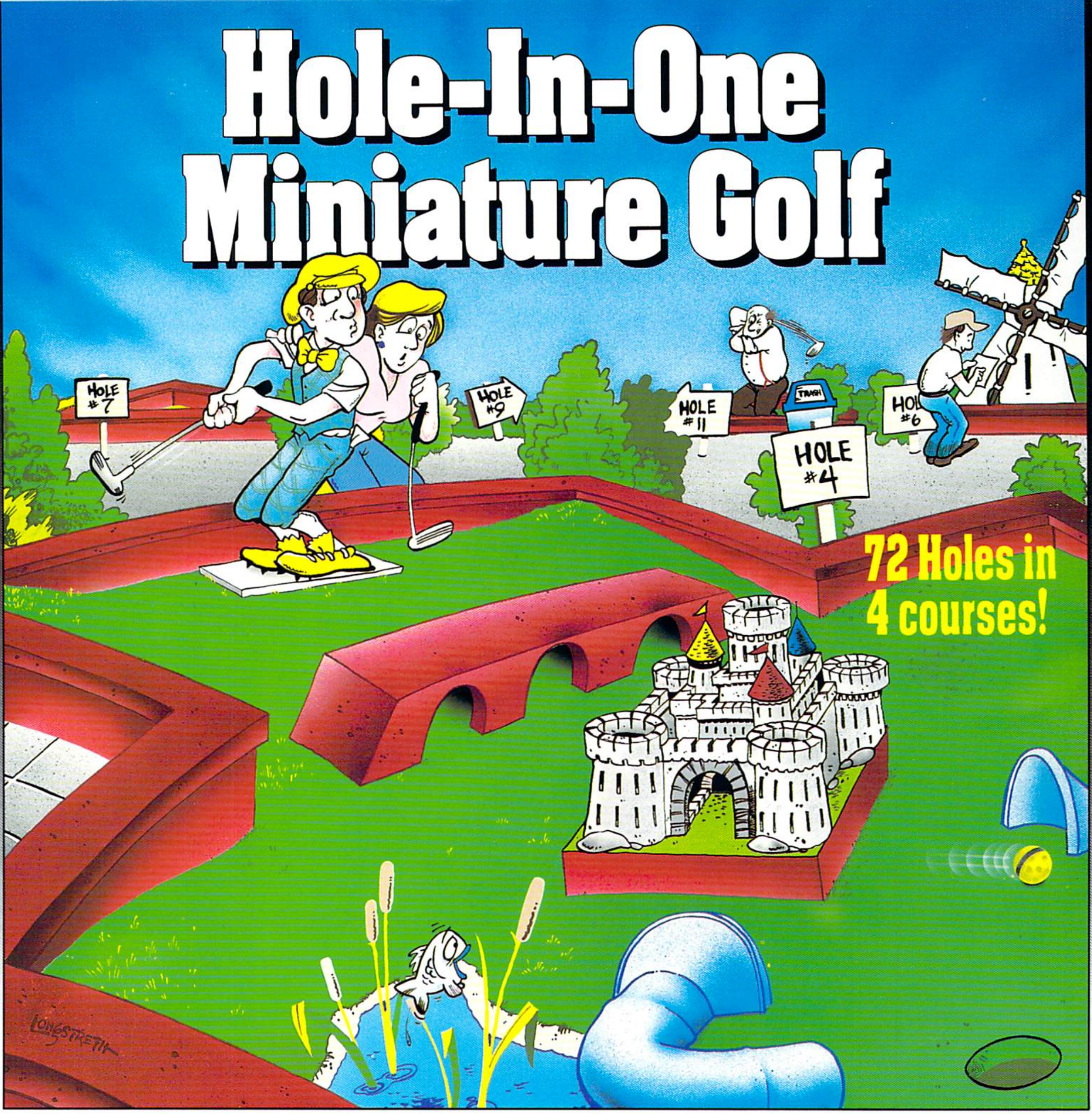
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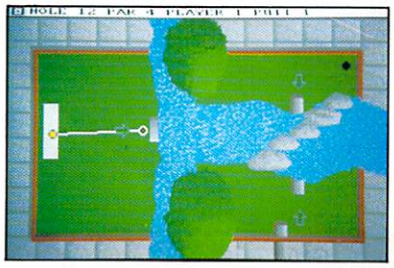


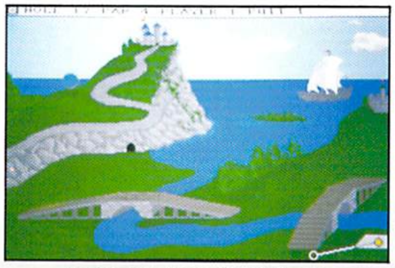
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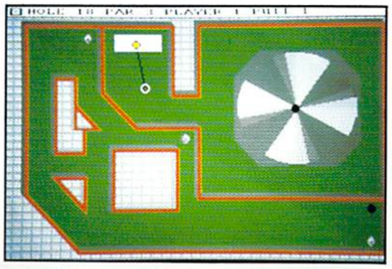
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